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LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interest of Lake Carriers, and improve the character of the service rendered to the public.

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HYDROGRAPHIC BULLETIN FOR THE GREAT LAKES.

Reports of fog, ice, wrecks, dangerous obstruction in the navigation and general information of a temporary character are published in special Hydrographic Bulletins for the mariners in the North Atlantic and the North Pacific oceans; and it is the purpose to give the lake mariners similar information for the Great Lakes. Masters of vessels are requested to send in such reports in order that actual condition of the navigation of the lakes may be known and published as a supplement on the last pages of the notices to mariners issued by the Hydrographic Office, U. S. N. Among the notices contained in a recent supplement are the following:

This office has received a letter from the captain of the steamer Alva, stating that the book of azimuth tables published by this office for the use of lake mariners is very useful. He says: "I can at any time the sun is visible correct my compass on any course in less than five minutes and with perfect confidence make the indicated change in course, which is of the utmost importance on metal boats, as on these boats the compasses are constantly changing." The attention of lake mariners is called to this publication, as they will probably have the same experience reported by the captain of the Alva.

CHICAGO—POSITION OF NEW FOUNDATION FOR THE BATTLESHIP ILLINOIS.

Work has commenced upon the new foundation for the battleship Illinois, in Lake Michigan, about 250 feet east of the shore line and 150 feet south of Van Buren street pier. Vessels passing this point are requested to slow down to prevent a wash that would interfere with the work.

HAY LAKE CHANNEL.

There will be no formal opening of the Hay Lake channel. The channel is now open for all boats that wish to use it.

Pursuant to an act of Congress the Secretary of the Navy has directed that a branch Hydrographic Office shall be established in the Arcade, Cleveland, O. This branch office will be in operation about October 1, and through the courtesy of the Chamber of Commerce at Cleveland, a time ball will also be installed in connection with the office.

CHICAGO, ILLS.—ESTABLISHMENT OF DISPLAY STATION FOR WEATHER BUREAU STORM SIGNALS.

By order of the Chief of the Weather Bureau, a display station for Weather Bureau storm signals was established on July 20, 1894, at the life-saving station on Illinois Central pier 1, Chicago. The man in the tower over the station building will always be supplied with a copy of all storm warnings or other Weather Bureau information of interest to mariners. The same signal will be displayed from flagstaff as shown from main station.

CAMPANIA'S FAST RECORD.

The Cunard Line steamer Campania, which arrived at New York on Friday last from Liverpool and Queenstown, has earned the title "Queen of the Ocean," besides being a record breaker. She left Daunt's Rock at 12:45 p. m. on August 12th and arrived at the Sandy Hook light-ship at 5:45 o'clock on the evening of the 17th. Her time of passage was 5 days, 9 hours and 29 minutes, which beats all previous records by about 3 hours and 10 minutes.

The Campania had just previous to sailing been in dry dock, and was in first-class condition for making a fast run. Her daily runs were: 516, 528, 548, 525, 545 and 126. The Lucania, the sister ship of the Campania, had previously held the best western record between Queenstown and New York, 5 days, 12 hours and 47 minutes.

GOULDS AND A NEW YACHT.

In spite of the denials which followed the announcement by the Associated Press that George J. Gould was ordering a new Herreshoff racing yacht, the statement made was perfectly correct. It is true that actual work on the new yacht will not be started until the negotiations which are known to be pending result in a challenge for the America's cup. Talking to Mr. Jameson and Capt. Carter on board the Britannia the other day, Mr. Gould said: "As soon as I know that a challenger is building in England, I shall order a boat to meet her."

A NEW RAIN GAUGE.

A meteorlogical instrument lately come into use, known as a rain and snow weighing gauge, has the wonderful capacity of weighing out rain or snow in quantities representing the one-thousandth of an inch precipitation and registering each small fraction separately. The apparatus consists of two parts, the weighing gauge and the recorder, or register, so that the greatest possible accuracy is obtainable in the observations of the Weather Bureau, Department of Agriculture. The gauge is placed on the roof of the observatory, and is connected with the recorder by means of three electric wires, one of which is open and a few cells of electric battery inserted. The receiving vessel into which the precipitation falls and is retained rests upon ordinary weighing scales, so made that the equilibrium of the balance, whenever disturbed—as by the fall into the receptacle of small particles of water—is immediately restored by the automatic movement of a sliding weight along the balance beam, a corresponding movement taking place in the register pen of the observatory. The fall of water into the receiver depresses the beam, causing electrical contact to be made with a spring and sending a current through the magnet on the balance, the action of which moves the counterweight and also sends the current through the magnet on the register, thus actuating the recording pen. This extremely delicate instrument is reported as working perfectly.

WHY ANCIENT CHARTS WERE MARKED BY OBSTRUCTIONS.

It is well known that the old-time charts were marked in many places by shoals, islands and obstructions which never existed. One of these exploded notions has just come to light in the proper exploration of the mystery of the strange bark that three ship captains have reported stranded on a reef fifteen miles west of the Straits of Le Maire, with all masts and rigging standing. Quite recently a vessel reached London and reported having passed within a short distance of the deserted bark, and interest was renewed in the thrice reported stranded vessel. All agreed in saying it was an iron ship, and most likely of German construction. It was bark rigged, and had black painted portholes. Shipping and insurance men have been trying to determine the name of the wrecked bark, but without success. No vessel of its description should be anywhere in the vicinity of the Horn, and none is overdue at any port that would pass within thousands of miles of the spot.

It is not likely that it could be taken for the Crown of Italy, which ran on a reef in the Straits of Le Maire about two and a half years ago. It was a full rigged ship, and when it struck most of her masts went by the board. A few days afterward the sea was strewn with wreckage, and nothing was again seen of the wreck. A few days ago the British ship Cedric the Saxon arrived at San Francisco from Swansea, and she passed close to the spot where the mysterious bark has been seen. Capt. Rees tells a story which further complicates matters. He says the so-called bark is nothing but a rock, although its resemblance to a ship is so striking that he made an entry in his log to the effect that a ship was stranded, with all the rigging intact. He says that he was out fifteen miles when he first saw it, and was sure it was a wreck.

As he approached nearer he found it was a huge rock sticking out of the water. It was only about half a mile away, but even then its resemblance to a bark with painted ports was so striking that all hands had to be called for an opinion. The puzzle to the captains who have rounded the Horn dozens of times is that the strange rock has never been seen before.

NEWS AROUND THE LAKES.

CLEVELAND, O.

Special Correspondence to The Marine Record.

Mr. M. A. Bradley has returned from a short tour of the lakes.

Capt. Cuson, ships' husband of the Whitney fleet, Detroit, visited this port on vessel business on Monday.

Capt. George Warner, vessel owner and broker, has just returned from Duluth, having made the round trip in the steamer Morley.

The season of the steamer Lakeside, the Cleveland and Port Stanley line boat, Farrasey & Marron, agents, will close on September 20th.

Capt. Dale, of the steamer State of Michigan, was fined $40 by the collector of customs at this port for leaving the harbor without taking out clearance papers.

Prof. E. W. Morley, of this city, was on Tuesday elected as president of the American Association for the Advancement of Science, in convention at Boston.

Surveyors Capt. Daniel McLeod and Capt. Thomas F. Murphy report the damage on the A. J. Rogers, sustained by stranding in the Straits, at $3,214. She will be repaired here.

Work at the yards of the Cleveland Ship Building Co. on the new steel steamer I. W. Nicholas is progressing as fast as possible and she will be ready for business early next month.

Prof. M. W. Harrington, chief of the Weather Bureau, passed through the city on Friday last, enroute for Washington, after spending three weeks on the north shore of Lake Superior.

The steel steamer Frontenac is at the yards of her builders, the Cleveland Ship Building Co., repairing the damage caused by colliding with a schooner. It is expected that she will be ready to clear again on Saturday.

The steam yacht Wadena, owned by J. H. Wade, of this port, arrived at Yokohama, Japan, last Thursday. Mr. Wade and a party of friends left Cleveland Saturday to join the yacht at Yokohama, and will then make a long cruise about Japan and China.

Two powerful steam pumps were dispatched from here on Wednesday night to the schooner Ahira Cobb, sunk through collision in Mud lake on Wednesday afternoon. Prompt measures will be taken to raise the vessel. She is owned by M. A. Bradley.

Mr. William Wilson, who has been "under the weather" nearly all season, had an operation performed last week, since which time he is apparently on the improve, and it is hoped that he may soon be found at his desk again in the office of the Wilson Transit Co.

Among the prominent men connected with the vessel business that are out of town this week, are Capt. Thos. Wilson and H. D. Goulder, Esq., both of whom are spending a week in Duluth. Mr. W. G. Mather has left for Europe, Capt. John W. Moore is on a Lake Superior yachting cruise and Mr. Holding, admiralty attorney, is visiting in Canada, to return early next week.

The excursions to Buffalo and Niagara Falls on the C. & B. Line are very popular this season, while the general passenger traffic to the Queen City is much greater than was anticipated. The Put-in Bay excursions given daily by the D. & C. Line, as well as the regular sailings to Detroit are patronized in a manner that will show on the right side of the ledger at the close of the season.

The Grummond line steamer State of Michigan leaving here for Mackinac and way ports every Friday night takes out a good passenger list each trip as many persons taking a lake tour enjoy calling as frequently at ports as possible and whiling away their leisure time at something less rapid a gait than the great North West gets over the ground.

It is expected that the Hydrographic Office will be fitted and ready to carry on work in about two weeks. There is some little detention experienced on account of the non-arrival of a portion of the equipment. With the Weather Bureau for shore work and the branch Hydrographic Office to look after lake interests this port will be in as good hands as any seaport in the world. Lieut. George P. Blow, U. S. N., has been detailed from Chicago to inaugurate the Cleveland office.

Through detention at the St. Mary's Falls canal and on Hay Lake on account of fog the North West arrived at this port twenty-one hours behind her schedule time, or at 8 a. m. Monday instead of 5 a. m. Sunday. The delay was the means of disappointing a large number of passengers both at this port and Detroit, but it is difficult to see how exact running time can be made unless the North West is given precedence over all other vessels at the "Soo" and clear weather in the rivers is assured.

Capt. G. E. Galarno, of Bay City, Mich., master of the barge David Ferguson, is one of the oldest sailors in point of service on the lakes. He has sailed steadily for fifty-six years, beginning at the early age of ten. He has never missed a season and was never in a wreck. The captain enjoys excellent health. He says he is good for many years more. Another old timer with as lengthy a record is Capt. James Davis, of this port. Capt. "Jim" joined the schooner Citizen in 1836. She was 137½ tons and carried 5,000 bushels. Mr. W. B. Guyles was pilot of her, and a round trip from Buffalo to Chicago and return was made in exactly three months. Capt. Davis is now in his 72nd year, hale and hearty, and keeping well posted on marine affairs. Speaking of old tonnage, Capt. Davis says he well remembers the large 10,000 bushel schooner Wing and Wing, built in Ohio City—or at the west end of the present Central viaduct—in 1845. She was then thought to be about as large a vessel as could be safely handled, and it would seem so when it sometimes took them six weeks to work through the rivers from Lakes Erie to Huron.

CHICAGO, ILL.

Special Correspondence to The Marine Record.

Carr & Blair chartered the schooner James G. Blaine for wheat to Milwaukee at ¾ of a cent, free unloading.

Capt. John Prindiville chartered the schooner Sunrise for 40,000 bushels of oats to Port Huron at ⅞ of a cent.

J. J. Rardon & Co. chartered the steamer Arizona and consorts Scotia and Plymouth for oats to Buffalo at 1 cent, the steamer Caledonia for corn and oats to Port Huron at ⅞ of a cent.

J. G. Keith & Co. chartered the steamers Iron King and Iron Duke and consorts Iron Queen and Iron State for oats to Buffalo at ⅞ of a cent; the steamer Thomas Davidson for corn to Buffalo at 1 cent.

Elphicke & Co. chartered the steamer Argonaut for wheat to Kingston at 2¼ cents, steamer Josephine and consort Thos. L. Parker for wheat to Erie at 1 cent, schooner F. W. Gifford for oats to Port Huron at 1 cent.

Palmer, Cook & Calbick chartered the steamer Toltec and consort Miztec for wheat to Kingston at 2⅛ cents, schooner J. B. Wilbur five transfer trips Central elevator to Armour A elevator, steamer Roanoke to transfer wheat from Wabash elevator to Air Line elevator, steamer Maggie Duncan for two cargoes of wheat for Milwaukee, ¾ of a cent, free discharging.

At Miller Brothers shipyard the steamer R. R. Rhodes is in dry dock to receive 20 feet of new forefoot, 32 feet new keel amidships, 2 pieces garboard amidships, 2 garboard fore hoods, 20 new bottom planks, calking from the keel to light water mark, and all new buckets to her wheel. The tug Success was in dock for stopping a leak and repairs to stern bearing; the barge Butcher Boy for bottom calking; the steamer Emma E. Thompson for some repairs and a new shoe; the schooner W. O. Goodman will receive a new foremast.

Thomas H. Cavanaugh, of Olympia, Wa., is in the city endeavoring to organize a syndicate to raise a number of lake steamers with his patent system of canvas bags. Mr. Cavanaugh states that enough capital has been interested in the project to enable him to begin operations at an early day. From his present intentions he will commence with the steamer Brunswick, which was sunk by collision on Lake Erie several years ago. He hopes to be able to secure the Dean Richmond, in case that wreck should be located by the expedition now searching for it on Lake Erie off Dunkirk.

The steamer R. R. Rhodes arrived here Sunday noon ight from South Chicago in tow of the tug Hausler and was taken to Miller Bros.' dry dock for a survey and repairs. The Rhodes went ashore at 11:30 p. m. of Aug. 11th on the north point of South Fox Island when on her way from Duluth to South Chicago with iron ore. About 200 tons of her cargo was jettisoned and she was released Sunday night, August 12th, by the steamer J. W. Westcott, which towed her to Northport and she left there the following Wednesday morning in tow of the steamer Marquette and arrived at South Chicago last Friday morning. A survey was held on the steamer by Capts. Rounds and William Keith.

Saturday afternoon the tug G. W. Gardner, with the schooner Ford River in tow going up the south branch of the river collided with the schooner York State at a dock just above 12th street bridge where she was unloading ice. Eight planks were broken in the stern of the York State and the Gardner had her smokestack and whistle and the skylight of the engine room knocked off and the Ford River carried away her bobstays and some head gear.

WILLIAMS.

DETROIT, MICH.

Special Correspondence to The Marine Record.

Mr. N. B. Conger, Marine Inspector of the Weather Bureau for the lakes, returned to this port on Saturday, after spending about three weeks on the north shore of Lake Superior studying local currents, taking temperatures, and otherwise carrying out special duties ordered by the Weather Bureau, Department of Agriculture.

The steambarge A. D. Hayward and her consort, the schooner Peshtigo, were libeled last week at this port when partly discharged in the sum of $4,539.92 in favor of the captain of the Hayward on a claim of demurrage against the parties who chartered the boats on account of delay in getting her cargo and bill of lading. The libel in no way affects the consignees, except as it obstructs their docks to some extent. The charterers are expected to make an early settlement of the claim for demurrage.

Capt. Comer, of the steamer Cole complains of the habit of the dredge managers working on the deep channel at the mouth of the river, of anchoring their dump-scows without lights to the starboerd side of the channel, going down, near Bar Point. He says these scows are a constant menace, to navigation as they cannot be seen until a vessel is almost on them.

The fastest time ever made between Detroit and Put-in-Bay was made last week by the sidewheel passenger steamer Frank E. Kirby. The passage from this port to Put-in-Bay was made in two hours fifty-four and three-quarter minutes. The distance between Bois Blanc light and Put-in-Bay, 35½ miles, was covered in one hour fifty-eight and one-quarter minutes. The average revolutions of the wheels from Detroit to Middle Sister was 32½. Between Middle Sisters and Put-in-Bay 34½ revolutions were made, and the speed of the boat was calculated at 20 miles an hour. When it is known that the greater portion of the distance is run in shoal water, the work of the Kirby shows up perhaps better than any other steamer on the lakes, given deep water and it is a question if this speedy craft could not walk away from anything put alongside of her.

The steamer America, bound up, collided with the schooner Ahira Cobb in the middle of Mud lake, St. Mary's river on Wednesday afternoon. The Cobb was struck forward of the fore rigging on the port side, and her planking is all started. She sunk in seventeen feet of water. Both vessels were coal laden. The Cobb was in the tow of the steamer Gladstone, and the two were lying-to in Mud lake in a heavy fog. The captain of the America claims that he did not see the Cobb until it was too late to avoid the collision. The Ahira Cobb is owned by M. A. Bradley, of Cleveland, and was not insured. Her coal cargo was fully covered in the sum of $3,000, held by C. A. MacDonald & Co., of Chicago. The America is commanded by Capt. James Gibson, who owns an interest in the steamer. He is one of the oldest steamboat men on the Lakes, and has the reputation of being a careful master.

BUFFALO, N. Y.

Special Correspondence to The Marine Record.

This has been a splendid season for the excursion trade out of this port so far and the crowds are by no means diminishing as the season advances.

The North West grounded for an hour on her last trip here Tuesday and it took a fleet of tugs to get her waterborne again. The tugs puffing and snorting around the big white boat looked much like a thresher attacking a whale.

Palmer & Farrell is the name of a new shipbroking firm at this port. The senior member of the firm, Mr. C. F. Palmer, is well known by vesselmen. He is a member of the firm of Palmer & Co., of Cleveland, and is at the head of the firm of Palmer, Cook & Calbick, of Chicago.

The lake line managers have agreed to restore the spring rates on a basis of 15c. on sixth-class freight, Chicago to New York, 17½c. from Duluth and 27c. from St. Paul. As a result of this action the agents of the rail and lake lines at Duluth received orders to restore the tariff schedule of 17½c. per 100 pounds on flour to New York. This ends the rate war for the present.

Capt. Rice and Capt. Robinson held a survey here a few days ago on the steamer Alva, which was slightly burned while at Two Harbors, but the amount of damage to her upper works has not been estimated, as they are light, and do not impair the seaworthiness of the steamer. Repairs, it was said, will be made during the winter months. The damage apparently will not prevent the vessel from making trips.

The proposal to build a Marine Exchange or rather a large building, centrally located, where shipowners, managers, brokers and others connected with the vessel business might each have their offices is an excellent idea and deserves commendation. I hope that interests may be got together and the work of putting up such a building will be taken hold of and the house made ready for occupancy early next season.

The great elevator monopoly has about renewed its grip upon the grain trade of the West passing through this port, and the old rates for the elevation and storage of grain are to be restored. During the war between the elevator combine and the floating elevators, grain was transferred from lake vessels to canal boats at one-third of a cent per bushel. The restored rates are seven-eights of a cent or as much as vessels receive for bringing the grain here from Chicago. This means that the Kellogg elevator, which withdrew from the combine, has been whipped into line. It is stated on

good authority that all the floating elevators will be in the pool in a few days. There are only a few preliminaries now to be settled. It is not known yet whether the old rate will prevail in transfer elevation or not, but it looks as if it would. If so, this means seven-eighths of a cent for everything, for the rule before the diversion was created by the floaters was not to accept anything for transfer merely, but to exact full storage rates. The reorganization of the pool will more than counterbalance the recent reductions in elevator charges at the head of Lake Superior.

DULUTH AND SUPERIOR.

Special Correspondence to The Marine Record.

The slashing of rates for west bound package freight has been stopped (till next time, anyway), and a stable business is doing. The new Ogdensburg line is claimed by the other shippers to be the black sheep in the lake rate cutting.

The North West seems to be increasing her passenger business with every trip, and she is sure of making a great deal of money next year, while there will be no difficulty in coming out ahead this season. The boat has had quite an effect, too, in the business of the Great Northern road between here and St. Paul and as well to the west. The Northern line freight boats are said to be making good money in the package freight business.

The reduction of elevator rates of storage have brought down those of Minneapolis, and they are now about on an equal plane with Duluth as before. Receipts of new wheat are small yet, but will be very large in the course of two weeks more. Shipments last week were about 715,000 bushels, including that taken by the mills. Wheat freights are steady at 1½ cents to Buffalo, and one cargo was taken last week to Milwaukee at 2 cents. Kingston rates are 3 cents.

Iron ore movement continues very good. The Minnesota Iron Co. is shipping daily from its Vermillion mines about 6,000 tons, and from its Mesaba mines about 3,500 tons. The Mesaba mines other than these are shipping some 13,000 tons daily. The Norrie mines of the Gogebic are shipping 6,500 tons daily, and the range outside these mines is sending out about the same quantity. Marquette is shipping between 7,000 and 8,000 tons a day, and Escanaba about twice as much. The movement from Ashland and Escanaba may decrease later.

The lumber trade is active as usual, and there is very little unsold lumber on the docks at Duluth. This is in direct contrast to the condition of things at Saginaw and other Michigan points. At Saginaw I hear there are 300,000,000 feet piled on docks, and only about 10 per cent. of it sold. The manufacturers there are banking on higher prices, while those of Duluth, realizing the change the tariff will make in the lumber conditions, are not. At interior mills in the Duluth district there is, of course, a very large amount of unsold lumber, as at Cloquet, where there are in one yard 50,000,000 feet, practically all unsold. Shipments of lumber from here last week were over 8,000,000 feet, making a total of 78,000,000 for the season.

There have been some wild stories told of late as to the receipts of coal at the head of the lakes, one of the Cleveland papers going so far as to say that there would be 800,000 tons received here in the next month. Serious blockades are reported at the docks, and it is told that daily coal arrivals are from 20 to 30 vessels. Of course, all this is utter rot. The daily arrivals are about ten, and the cargoes will average something like 25,000 tons a day, and there is no present indication of any decided increase. To-day there are in port 50 coal boats, some of them unloaded and taking ore, while most of the others are pretty well cleaned out. Coal freights are picking up considerably, however, and some fancy prices are looked for later in the season, especially as the wheat crop is better than was anticipated, and will take more railroad coal for its movement to lake ports.

MANISTEE, MICH.

Special Correspondence to The Marine Record.

The steam yacht Hinda, Capt. L. Larsen, ran in here Thursday afternoon to coal up.

The Canfield Tug Line are having a new cylinder and piston placed on their fine tug Irma L. Wheeler, by the Manistee Iron Works.

At Thoreson & Co.'s shipyard Capt. Tom Clarke's schooner Lillie Pratt lays in the slip. Her hull looks in pretty good condition and her spars are intact with the exception of her jib-boom and main gaff.

Thoreson & Co., shipbuilders, have nearly completed a new box 50 feet long 60 feet wide to use with their other two boxes, 50 feet by 60 feet and 60 feet by 60 feet respectively. The firm will be in good shape for docking some good large, rebuilding or repairing jobs the coming fall and winter. They have also recently built a new saw mill.

The Buckley and Douglass Lumber Co.'s mills and the Michigan Trust Lumber Co.'s mills are running night and day. The Canfield & Wheeler Lumber Co., Manistee Lumber Co., Eureka Lumber Co., State Lumber Co., Louis Sands' two mills, White & Triant Lumber Co., Filers & Son's Lumber Co., United States Lumber Co. and the C. Reitz Lumber Co. are running their mills daily.

Your correspondent visited the Manistee Life Saving Station and found Capt. John Hanson and his sturdy crew of life savers, and the life boat and surf boats and life saving appliances in excellent condition and ready for immediate service. Wednesday, August 9th, Capt. Hanson and his gallant crew manned the life boat and went to the assistance of the sail yacht Greece, which had capsized three miles south of Manistee harbor. They rescued the crew of four men who had been clinging to the bottom of the yacht for an hour, and were in a very exhausted condition when taken on board the life boat. They were taken to the life saving station where they were supplied with restoratives and food and dry clothing.

At the invitation of Capt. Charles Gnewuch your correspondent took a trip this week to Manistee on the steamer Edward Buckley. The steamer is owned by Edward Buckley and Capt. Gnewuch, and is the most complete and best equipped lumber carrying steamer on Lake Michigan. She was built in 1891 by Burger & Burger, of Manitowoc, and commenced running in the spring of 1892. Her dimensions are 174 feet over all, 31 ft. 6 in. beam, 10 ft. 6 in. depth of hold. Her fore and aft compound engine with cylinders 18 and 36 in. by 30 in. stroke was built by the Montague Iron Works, and her steel marine boiler, 9 ft. shell, 14 ft. long, allowed 140 lbs. steam pressure, was built by the Manitowoc Boiler Works. She has the American Ship Windlass Co.'s windlass and capstans, a Manton steam steerer and a Sheriffs Manufacturing Co.'s hoisting engine. During the season of 1892 the Buckley made 52 round trips between Manistee and Chicago, and in 1893 50 round trips, and up to Satudday last she had made 30 round trips this season. Her average cargo is 450,000 feet of lumber. She can carry half a million feet of dry lumber. Her average speed is eleven miles per hour, loaded, twelve miles per hour light, and she is an excellent sea boat. Daniel Wall, first mate, and Richard Winkler, chief engineer, have held those positions on her with Capt. Gnewuch ever since she commeeced running in the spring of 1892.

Whilst at Manistee your correspondent heard a good sailors' yarn. In the great gale of May last a steambarge, with lumber from Manistee, when entering Milwaukee, found the schooner C. C. Barnes dragging her anchor just outside the piers and laying directly across the entrance to the harbor. The captain seeing the situation and knowing that if he tried to go astern of the schooner his steambarge would be blown away to leeward by the heavy gale, he watched for an opportunity, and as the schooner arose upon a heavy wave he ran the steambarge under her jibboom, which descended with the wave just after the steambarge had passed under it. The captain who told the story did not mention whether the steambarge went under or over the schooner's anchor chains. WILLIAMS.

A STEAM TOWING MACHINE.

Industries and Iron, London, illustrates in a recent issue the steam towing machine manufactured by the American Ship Windlass Co., of Providence, R. I. The article in question states as follows:

"Although the Shaw and Spiegel steam towing machine has not been generally adopted in any British steam-tug or steamship, it is well worthy of shipowners' consideration, as it has been fitted on several United States vessels, in which towing is a regular operation, as well as in ordinary dead-weight carrying vessels, which only require such an appliance when attempting to salve or assist other vessels in distress. It has been of not infrequent occurrence that valuable salvage has had to be abandoned on account of the breakage of tow lines, and apparently such liabilities are greatly reduced by adopting this steam towing machine, of which we give an illustration. Its distinctive feature is that by means of the steam cylinders there is provided an elastic steam cushion, so that the tow-rope (preferentially a steel hawser) is not subjected to sudden strains. As will be seen from our illustration, the wire hawser is wound on a drum that is driven by a pinion gear on the crank shaft of the engine, which engages with the gear on the drum shaft. A regulating and reducing steam valve is provided in which the opening is increased or diminished as the strain of the hawser increases or diminishes. The action of the machine is as follows: In a seaway as the vessel pays off, increasing the strain on the hawser, the drum begins to revolve and to pay out the latter, when the regulating valve opens and augments the steam pressure in the cylinders until it is equal to the strain put upon the hawser; then, if the strain on the hawser decreases, the pressure in the cylinders will revolve the drum and wind the hawser in. In this way the machine is prevented from paying out the whole of the hawser, and only sufficient is released to relieve the extra and momentary strain on the hawser, thus preventing its injury or breaking. When the vessel being towed casts off the hawser, the regulating valve is disconnected, and the machine becomes, in effect, a simple hoisting drum to be started to wind up the hawser."

ITEMS FROM THE LOG BOOK.

Capt. Keefe, with the Buffalo tug Henry W. Johnson, is sweeping off Dunkirk to locate the foundered tug Dean Richmond.

The torpedo boat Ericsson, now on her way to Brooklyn, N. Y., enjoys the distinction of having been built in the middle of a continent. The vessel was constructed at the Iowa Iron Works, Dubuque, Ia., and to reach Brooklyn had to make the long voyage down the Mississippi river to the Gulf of Mexico, and thence up the coast. The Ericsson is 150 feet long, 15 feet 4 inches beam and 11 feet deep.

A Port Huron man is agitating the question of free dockage for boats that wish to lay up at that port in the winter. He estimates that the average expenditure of boats thus laid up is $1,000 for each, and he has a plan by which the city might lease the docks from their respective owners that their boats can stay there free of dock cherge. "One hundred more boats," he says, "means $100,000 spent in our city during the winter." And he is about right.

The Reid wrecking expedition, which has been endeavoring for some weeks to recover something from the wreck of the steamer F. W. Wheeler, which went ashore near Michigan City last December, is having hard luck. Thus far only one boiler and a small part of the engine have been recovered, and the expense amounts to more than the salvage is worth. Everything is sunk in the sand and buried. Capt. Reid bought the wreck from D. C. Whitney, of Detroit, paying about $1,000 for it.

The North German Lloyd Steamship Co., the Hamburg-American Line and the Netherland-American Line, comprising what is known as the joint service from New York to Queenstown, will extend that service to Southampton, steamers to be run weekly and if necessary bi-weekly. The service was established in the spring to compete with the British lines. Steerage rates will remain the same. A line of steamers to Baltimore from Queenstown and Southampton is under contemplation, but nothing definite has been done in the matter.

The Senate has confirmed the nomination of Michael J. Galvin, of New York, to be supervising inspector of steam vessels for the Ninth district, stationed at Buffalo.

The demand for tonnage at Chicago has greatly improved and a rate of 1¼ cents to Buffalo is being talked of. There is a great flood of soft coal in transit from Ohio ports to the Northwest and the only thing that will be likely to limit the flow will be the capacity of the wharves to receive it. Lumber rates at Alpena have made a slight advance and there was some brisk chartering done during the week.

MARITIME LAW.

THE WELLS CITY.

Circuit Court of Appeals, Second Circuit. May 29, 1894.

SHIPPING—CARRIAGE OF GOODS—LIABILITY FOR DELAY. A clause in a bill of lading, giving the ship liberty "to tow and assist vessels in all situations," authorizes her, if in the ordinary course of the voyage she falls in with another vessel in distress, to go to her assistance and tow her to such place of safety as, under the particular circumstances of the case, is most reasonably accessible.

Appeal from the District Court of the United States for the Southern District of New York.

This was a libel by the Morris Beef Co., Limited, against the steamship Wells City, George John Savage claimant, for damage to cargo. The district court dismissed the libel (57 Fed. 317). Libelant appealed.

THE DAGO.

Circuit Court of Appeals, Fourth Circuit. May 22, 1894.

BILL OF HEALTH—PORT OF DEPARTURE. A merchant ship bound for the United States must (27 Stat. 449) procure a bill of health "from the consul or other consular officer of the United States at the port of departure." Held, that "the port of departure" is not the last port at which the ship stops while bound for the United States, but the port from which she cleared.

Appeal from the District Court of the United States for the District of Maryland.

This was a libel by the United States against the British steamship Dago to enforce a forfeiture. The district court dismissed the libel, and libelant appeals.

District Court of New York. April, 1894.

LIMITATION OF LIABILITY. The State of Virginia, a British vessel, owned by the State Steamship Co. and bound from New York to Glasgow, stranded on Sable Island. Her cargo was damaged, and suits against the owners *in personam* were commenced in the New York District Court by the underwriters, both English and American. A petition was filed by the State Steamship Co. for limitation of liability. The proofs showed that the vessel became a wreck, and the cost of her attempted rescue was greater than the sum realized from the property saved, and the commissioner reported that the steamer and her freight after the stranding were of no value. Exception was taken to this finding in order to raise the question whether the British owner of a British ship proceeded against in an American court by both British and American cargo owners in respect to a loss of cargo occurring in British waters can claim limitation of liability under the statutes of the United States, or whether the liability is determined by the law of Great Britain. In this case the learned judge decided that the extent of the liabiltty of the ship owner was determined by the statutes of the United States.

A PRIMITIVE MAN-OF-WAR.

A model of Commodore James Barron's prow ship was exhibited in the rotunda of the Capitol at Washington in 1836, and is now preserved in the Seamanship building at the Naval Academy, Annapolis, Maryland. Its inventor thus described this, the first steam ram ever proposed, under date February 11, 1836:

"I would propose that a vessel be constructed of solid logs of light timber, the gravity of which would not exceed four-tenths that of water, and be of such bulk that that the upper part of the solid log work of the center vessel would float six or eight feet above its surface.

"Let this vessel, or combination of vessels, be of large dimensions, say from one hundred and fifty to two hundred or two hundred and thirty feet long, and seventy or eighty feet wide, and resembling in their form a steamboat of the treble construction. The prow should be very strong, and for a few feet aft a little sharp; but not so much so as to impair its strength. The point of it should not be reduced to a less thickness than three or four feet, and not exceeding in its whole length beyond the bow of the center vessel fifteen or twenty feet, and that prominence covered with iron plates from three to four inches thick, eight or ten inches wide, and six or eight feet long on each arm, formed into an acute angle to fit the shape of the brow, and enlarged at their junction on the point of the prow to about eight or ten inches in thickness, and rounding outward in sharp pointed knobs cut in large diamond form. These plates should be placed four or five inches apart from each other and let half their thickeess into the wood, which will produce a saw-shaped space upon the prow, and prevent the glancing of the vessel from her object, either up or down or sideways.

"The logs that form the prow should be at least two feet square, thirty or forty feet long, and of the hardest and toughest wood, such as oak or elm, and occupy a space of ten or twelve feet up and down, and be supported on each side by the same kind of timber. The iron plates should be securely bolted through the whole mass, but particularly so through these logs of hard timber. To protect the crew and machinery from shot, let the guard vessels without the center vessel be built twelve or fifteen feet wide, and of solid white pine timber, and projected a sufficient distance from the sides of the center vessel to embrace the paddle wheels. These barricade vessels should be of sufficient elevation to cover the upper part of the paddle wheels. Each of the lower parts must form a bottom similar to the center one, and be secured to it forward and aft by the cross logs of which the center vessel is constructed, projecting from her sides to such a distance as to allow spaces for the paddlewheels on each side, and from as many points above the water between the paddlewheels as might be required for strength.

"The water is admitted to these paddle wheels between the bows of these vessels through a channel formed by a long inverted arch, the lowest point of which must descend below the level of the lower part of the wheels. The solid log work, forward and aft of the center vessel, should form a mass of at least twelve or fifteen feet in thickness, or as the side vessels.

"Over the top of these vessels lay a tier of logs about two feet square, which will serve as a protection to the crew and machinery from any assaults by boarding, etc. The middle vessel may be hollowed out, at a proper distance from her extremes, if more buoyancy is required than the timber itself gives, except amidships, and there the log work should be continuous from the prow all the way aft.

"The object of this vessel is to destroy men-of-war by running into them with such impetuosity as to break down their sides sufficiently to admit water in such quantities as would defy all possible efforts to prevent immediate sinking.

"Only about ten or twelve feet of the prow of this vessel ought to be allowed to strike the ship that is assailed; the other parts, above and below, should recede or incline aft, and this ten or twelve feet space should be so situated as to come in contact with the side of the enemy five or six feet above the water and five or six feet below its surface. The resistance to the stroke would be less impeded than it would be were it given by a prow of greater extent, and of course it would be more certain to pierce or break down that part of the side of the enemy's ship which it might come in contact with. Three steam engines of one hundred and twenty horse power each would propel such a vessel at the rate of eight or ten miles, or more, per hour, and should be preferred to larger ones, as they would be less liable to damage from the shock to which they might be exposed when the vessel should come at her full speed in contact with the enemy.

"Let those who are curious or doubtful of the efficiency of this plan calculate the effect which would be produced on a stationary body by a concussion so violent as would be occasioned by a stroke of the prow of this massive vessel. To make it apparent that the strongest ships in the world are entirely inadequte to resist such force, it need only be observed that they seldom come in contact with each other with any violence without sinking or sustaining a most destructive degree of damage.

"Ancient as well as modern history furnishes us with many proofs of the decided effects of this mode of attack. The Romans and Carthaginians were in the practice of running into each other's vessels at their greatest speed, impelled by their oars; and it is recorded of them that when they found their enemies entangled with their friends, so as to render them stationary for the moment of their assault, that it seldom failed to produce that description of destruction contemplated by the adoption of this invention; but the power of steam and the solid construction of this vessel would give this mode of attack a decided advantage over all other attempts of a similar nature ever heretofore resorted to, and beyond a doubt insure success.

"The proof of the effects of an attack made by a whale on the ship Essex, of New Bedford, in the year 1819, is conclusive that no construction of a ship now known could resist the shock of such a vessel as the one I have described. A circumstance not very dissimilar occurred to Capt. Jones, in the United States ship Peacock in the Pacific Ocean.

"The instances of destruction occasioned to vessels by one running into another are too numerous to admit of a doubt that if the plan recommended above should be adopted on a proper scale, it could never fail of effecting its object.

"The rudder is attached to the center vessel, and must be moved by a wheel which may be placed on the upper surface of the center vessel, under the roof or main coveriag, either forward or aft, but I should prefer its being aft, and it should be considerably forward and lower down than in ordinary cases. A breastwork should be raised aft, for the protection of officers and others, also for the chimneys and steampipes, in their proper places which should be circular.

"The timber alluded to in the above description is the white pine—'Pinus strobus'—poplar—'Liriodendron tulipifera'—and some species of the gum, none of which exceed four-tenths of the gravity of water.

"The prow mentioned in the first part of this description is not of such a form as I would either use myself or recommend to those whom I would allow to use my invention; that form might become fixed in the body assailed, but the form represented by the drawing will surely clear itself.

"In speaking of the different presentations of the prow and its momentum, it is to be considered as in contact with a solid body.

"Dimensions, etc., of the steam prow ship:

"Middle vessel—Length, 150 feet; width, 20 feet; depth, 30 feet; Number of cubic feet, 90,000.

"Side vessels—Each, length, 125 feet; width, 12 feet; depth, 30 feet; number of cubic feet, both, 90,000.

"Number of cubic feet in the three vessels, 180,000.

"Weight of each cubic foot of white pine in the three vessels, 24 pounds.

"Specific gravity of the three vessels 4,320,000 pounds or 1,963 tons.

"Specific gravity of the three vessels multiplied by their velocity gives as the whole momentum of the three vessels, 43,200,000 pounds.

"Momentum on each foot of the prow, 900,000."—*Scientific American.*

RIVER AND HARBOR BILL.

The following are some of the chief items in the river and harbor bill, which has now become a law: Buffalo, $70,000; Dunkirk, N. Y., $20,000; Ogdensburg, N. Y., $20,000; Oswego, N. Y., $37,000; Tonawanda harbor and Niagara river, $50,000; Ashtabula, $75,000; Cleveland, $50,000; Sandusky, $30,000; Toledo channel through Maumee Bay, $70,000; Conneaut, O., $40,000; Michigan City, Ind., $20,000; Waukegan, Ill., $20,000; Frankfort, Mich., $50,000; Grand Marais, Mich., $20,000; Muskegon, Mich., $30,000; Sand Beach, Mich., $20,000; St. Joseph, Mich, $30,000; South Haven, Mich., $20,000; Superior Bay and St. Louis Bay, Wis., $50,000; Duluth, Minn., $75,000.

A MONTHLY BROCHURE.

The *Penberthy Bulletin*, issued monthly by the Penberthy Injector Co., Detroit, Mich., is becoming a valuable exchange for class papers. The bulletin, while published principally in the interests of the manufacturing company issuing it, contains the best excerpts and articles printed in the technical journals of the country, a majority of which exchange with the *Penberthy Bulletin*.

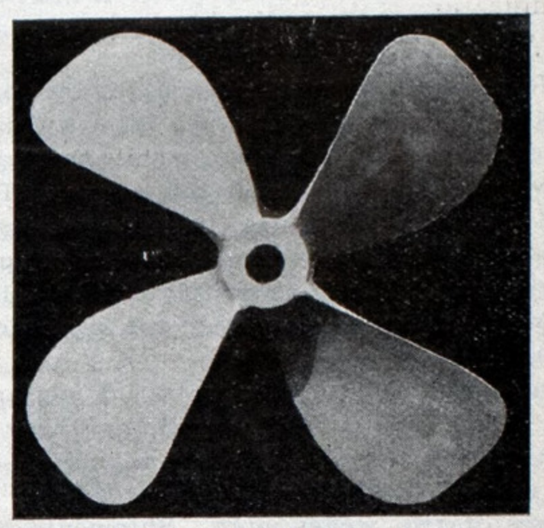
ASHLAND SHIPMENTS.

Shipments for last week from Ashland, Wis., were: ore, 85,032 tons; for the season, 994,158 tons; lumber, 66,770,000 feet; receipts of coal, 20,860 tons. The ore docks and yards are fast filling up and brisker shipments are expected from this time on.

PROPELLER WHEELS.

There seems to be more reason than ever for the belief that a special form of propeller is necessary to develop the highest economy under cetain conditions of trade, or, in other words, as according to the general employment which a steamer may be engaged in, so ought the propeller wheel to be adapted for performing that special work or service.

Through noticing increased efficiency in certain tonnage, our attention has been called to the solid and sectional propeller wheels turned out at the works of the McKinnon Manufacturing Co., boiler makers, machinists and founders, of Bay City, Mich. It is learned that these wheels are swept up, thereby insuring perfect pitch, while the design is symmetrical and thoroughly proportioned throughout, so that in all cases where this wheel has been fitted the most satisfactory results



McKINNON PROPELLER WHEEL.

have been attained. In the instances of the Saginaw Bay Towing Association, Michigan Log Towing Co., Reid Towing & Wrecking Co., Bridges & McLean, Pelton & Reid, of Cheboygan, and other well known owners of steam vessel property, the McKinnon propeller wheel is spoken of as giving the best possible satisfaction and gaining a name for itself second to none.

The McKinnon Co. have at their yards in Bay City a powerful set of hydraulic slings for raising boats of moderate tonnage, and their dock is equipped with a large crane, also pumps for testing and washing out boilers, so that the plant for marine work, including a jig mill, is efficient in every respect. Besides the manufacture of propeller wheels, engines and boilers, the company make a specialty of turning out the Peerless grate bars and refuse burners, and are among the most energetic firms on the lakes in attending to their marine patronage.

TRADE NOTES.

The Lodge & Davis Machine Tool Co., of Cincinnati, O., have made shipment to Arequipa, Peru, and Santiago, Chile, on orders received from their salesman, who is now traveling in South America. They have also just made shipment of one of their large engine lathes to the port of Odessa, Russia.

The Morgan Engineering Works, Alliance, O., have on their books at present orders for a large number of electric cranes, showing, it would appear, that business is not very slack in this department of their works, as well as that manufacturers are buying to some extent. The Morgan Works have, we believe, furnished 22 cranes to one concern.

Manning, Maxwell & Moore, 111 Liberty street, New York, have recently booked a number of orders for the Shaw three-motor electric traveling crane, and say: It is evident in these times of depression that the economy of handling material is a great factor, and the leading manufacturing establishments are availing themselves of the most modern methods of handling work by mechanical devices and are putting in the very latest improvements in the way of labor saving machinery.

The Penberthy Injector Co., of Detroit, Mich., state that they have no reason to complain of the volume of business for the past three months, especially in their trade; that orders of late have been frequent and large, indicating that business is rapidly picking up, especially in the Southern states. Jobbers who have not used their injectors, except as needed, since the panic of '93, are now placing orders for large quantities and in many cases duplicating the same within a few weeks. They also state that the popularity of their injector has caused many manufacturers to practically adopt their system of jets, which they claim is an infringement of their patents which they own and some of which they have recently obtained. They have notified the trade to this effect and expect to commence proceedings against such infringers in due time.

THE Secretary of the Treasury has removed from office R. J. Macnair, shipping commissioner for the port of Providence, R. I., and appointed to the vacancy James E. Freeman, who occupied the position during the first term of President Cleveland.

A MARITIME TREASURY DECISION.

TREASURY DEPARTMENT, June 26, 1894.

To the collectors and other officers of the Customs:

Articles 309 and 822 of the Customs Regulations of 1791 prescribe that liens can not be recognized for freight on imported merchandise intended for immediate export; and a question having arisen as to the consistency of such regulations with the provisions of section 2981 of the Revised Statutes, as amended by section 10 of the act of June 10, 1880, the matter was referred to the Attorney-General, who has rendered the following opinion:

DEPARTMENT OF JUSTICE,
WASHINGTON, D. C., June 18, 1894.

SIR:—I have your letter of June 1, 1894, inclosing a letter of the 20th of January from H. Maitland Kersey, on behalf of certain steamship companies, requesting a modification of the Treasury Regulations relating to liens for freight.

Section 2981 is as follows:

"Whenever the collector or other chief officer of customs of any port shall be notified in writing by the owner or consignee of any vessel or vehicle, arriving from any foreign port, of a lien for freight on any merchandise imported in such vessel or vehicle, and remaining in his custody, such officer may refuse the delivery of such merchandise from any public or bonded warehouse, or other place in which the same shall be deposited, until proof to his satisfaction shall be produced that the freight due thereon has been paid or secured."

It seems that the Treasury Department has given to this section a construction which denies to the owner or consignee a lien for freight on merchandise imported for exportation. Article 309, Customs Regulations, 1892, provides:

"Nor can liens be recognized for freight on merchandise intended for export."

A construction given in such solemn form by the Treasury Department, and continuously acted upon for long time, is entitled to great respect and consideration. Section 2989, Revised Statutes, provides:

"The Secretary of the Treasury may from time to time establish such rules and regulations, not inconsistent with law, for the due execution of the provisions of this chapter, and to secure a just accountability under the same, as he may deem to be expedient and necessary."

The chapter referred to is that on the bond and warehouse system, within which are embraced all the provisions which apply to the matter in hand.

The question for consideration is, Is the regulation referred to "inconsistent with the law?"

The chapter appears to intend and provide for three classes of imported merchandise, viz.: that imported for consumption, that imported for exportation and that imported for transportation. With that class imported for consumption we have nothing to do. As to the other two classes, it is provided by section 2971, Revised Statutes, that:

"All merchandise which may be deposited in public store or bonded warehouse may be withdrawn by the owner for exportation to foreign countries, or may be trans-shipped to any port of the Pacific or western coast of the United States at any time before the expiration of three years from the date of original importation; such goods on arrival at a Pacific or western port to be subject to the same rules and regulations as if originally imported there."

And the distinction between the two classes is also recognized by the statute (sections 2990, 2994 and 3004), by the Treasury Department (Customs Regulations, articles 568, 590) and by this department (16 O., 74).

All merchandise imported into the United States and unloaded at any port passes into the custody of the officer of customs at such port, whether it be unloaded for consumption, transportation or exportation.

Section 2981, Revised Statutes, provides that the owner or consignee of any vessel or vehicle arriving from any foreign port may notify the officer of customs of and port of a lien for freight on any merchandise imported in such vessel and remaining in his custody, and that such officer may refuse the delivery of such merchandise until the freight due thereon has been paid.

This may perhaps be limited as to certain classes of goods for transportation under section 2971, Revised Statutes, but I have been unable to discover any provision of statute which restrains its application for merchandise imported for exportation, nor do I perceive any reason why it should be so restrained. It is difficult to see how the owner of the vessel in which the merchandise is imported can be secured as to freight due thereon except by such a lien as appears to me to be provided by section 2981.

I am of the opinion that so much of article 309, Customs Regulations, as provides "Nor can liens be recognized for freight on merchandise intended for export" is consistent with section 2981, Revised Statutes, as amended, and that the owner or consignee of such vessel is entitled to a lien for freight.

THE SECRETARY OF THE TREASURY.

The department adopts the above opinion as a correct interpretation of the law cited, and articles 309 and 822 of the Customs Regulations of 1892 are hereby amended to accord therewith. Collectors of Customs will therefore hereafter accept liens for freight duly filed against any imported merchandise; such liens attaching to goods transported under the Immediate Transportation Act must be filed at port of delivery.

S. WIKE,
Acting Secretary.

THE NEW NAVY.

The reconstruction of the navy was begun a little more than eleven years ago. During the period since March 3, 1883, fifty modern vessels of all classes, now built or being built, have been authorized by acts of Congress. Toward their construction, equipment and armament there has been appropriated, including $9,955,025 in the naval bill at this session, the sum of $88,981,188.80. To finally complete, equip and arm them it is estimated that there will yet have to be appropriated the further sum of $23,080,974.84, making a total of $112,062,163.64, which the new navy, as now authorized, will cost. Of these fifty new naval vessels, only three were authorized by the present Congress, and their total cost is limited to $450,000.

ELECTRIC CANAL BOATS.

Electric propulsion on canals is not altogether so new a thing as those who read of the Erie canal enterprise may have been led to think. For some time past, in fact, electric power has been applied to identically the same purpose in France, on the Canal du Bourgogne, and illustrations which have appeared in several French papers of the electrically equipped boats there used have shown the arrangement adopted to be similar in many respects to that only recently carried out in the United States. On the French boats, however, the electric motors are not coupled to the propeller shaft, but, instead, drive trains of gearing by which a chain on the bottom of the canal is clutched, thus pulling the boats along. Chain haulage of this general kind has long been in use on some of the European waterways, and, in itself is nothing new, simply illustrating in this instance another example of electric development of an old method of propulsion. The double trolley system is employed, and the current is furnished by generators driven by turbines, the canal company controlling near by water powers which could be readily utilized.

ANOTHER CHICAGO LIFT BRIDGE.

The Northwestern Elevated Railway Co., of Chicago, has submitted the plans for its bridge across the river at Wells street, Chicago, to the War Department. The plans provide for a lift bridge on the same principle as the one constructed at Halsted street and recently opened. The span is very much longer, however, and the bridge has to be raised to the same height, so that great problems confront the engineers designing the bridge. It is stated that all the difficulties can be surmounted very readily, however, although the bridge must be constructed to uphold much heavier weights than the Halsted street bridge. The towers on each side of the river will be upward of 200 feet high, and the bridge must be raised a clear 150 feet above the water for the passage of vessels. The span is 206 feet. It was originally intended to build a folding bridge at this place and raise one-half the bridge in the air on each side of the river. This was abandoned on account of the mechanical difficulties. It is estimated that the cost of the new bridge will approximate $1,000,000.

AMPLITUDES.

The following approximate amplitudes of the Sun's rising will be given each week in this column during the season of navigation: A second bearing of the Sun may be taken at sunset by reversing the bearings to read west instead of east, as, for example, N. E. by E. for a sunrise bearing would read N. W. by W. for a sunset, or E. 30° N. to W. 30° N.

LAKE ERIE AND S. END LAKE MICHIGAN LAT. 42° N.

Sunrise.	Bearing (degrees.)	Bearing (points.)
Aug. 25	E. 15° N.	E. by N. ¼ N.
Aug. 30	E. 12° N.	E. by N. ⅛ N.

LAKE ONTARIO, S. END HURON AND CENTER LAKE MICHIGAN LAT. 44° N.

Sunrise.	Bearing (degrees.)	Bearing (points.)
Aug. 25	E. 15° N.	E. by N. ¼ N.
Aug. 30	E. 13° N.	E. by N. ⅛ N.

N. END LAKES HURON AND MICHIGAN, LAT. 46° N.

Sunrise.	Bearing (degrees.)	Bearing (points.)
Aug. 25	E. 16° N.	E. by N. ⅜ N.
Aug. 30	E. 13° N.	E. by N. ⅛ N.

LAKE SUPERIOR LAT. 48° N.

Sunrise.	Bearing (degrees.)	Bearing (points.)
Aug. 25	E. 17° N.	E. by N. ½ N.
Aug. 30	E. 14° N.	E. by N. ¼ N.

With a compass correct magnetic, the difference between the observed and true bearings will be the variation for the locality. If there is any deviation on the course the vessel is heading at the time of taking the bearing the result after the variation is applied will be the amount of deviation on that course.

OFFICERS OF SAILING VESSELS.

The New York *Maritime Register*, referring to the officers of sailing vessels, has the following pertinent editorial in its latest issue:

"The time is coming when the shipping trade of this country will be of large proportions. It is a cause of much regret that it is not so at the present time. But were it a fact, or should it come upon us suddenly, it would be found that, so far as government legislation in respect of it is concerned, we are in a great degree unprepared for it. There is much to be done in this matter before it can be rightly regulated. To emphasize this assertion it may be asked to whom is a shipmaster accountable for an accident to or the loss of his vessel and cargo and possibly human life? To the owner alone, perhaps, so far as the vessel itself is concerned. The latter, however, has no power to inflict punishment upon the master for either carelessness in navigation or neglect of duty. Anything actually criminal the courts may be relied on to take in hand. But this seldom is brought to light and it is often quite difficult to prove even in the event of its taking place. Consequently those masters who are inclined to be indifferent or careless in the performance of their duty have practically no restraining influence over them, and have to answer to no one in authority should this course lead to disaster to the vessel.

"The recognition of these matters by the general government is a very important matter and a pre-requisite to an increased shipping trade. If ship masters were compelled by law to qualify before an official board appointed for this purpose, there would be in it a guarantee of ability in the master should he pass the necessary examination. And, if in case of accident to his vessel it were made compulsory that he should make a full report of the case and undergo an inquiry into its cause by a government board appointed for this purpose, the effect would be most beneficial. The blame would then be rightly placed and an adequate penalty inflicted. This would be no imposition and the ship master who did his duty would have nothing to fear from it. It would establish his status in the shipping community. Nor could there happen that which has taken place in certain known instances and very probably in others not brought to light, that of the first mate of a vessel being practically the master and sole navigator, because of the master's almost entire lack of ability to navigate his vessel, holding his position by virtue of the number of shares of the vessel controlled by him or through being backed by influence. Under conditions as mentioned above no master would be allowed by law to sail a vessel unless he held a certificate from the government authorizing him to act in that capacity.

There is everything to be said in support of this supervision of ship's officers. And those who are careful navigators and perform their duty conscientiously will not be hampered in any way by it. This matter is one—and a very important one—of the many that need attention by Congress before this country will be in proper shape to manage a large merchant navy. An early start in this ought to be made in order that everything may work smoothly, both in respect of it and many things relating to it. And it is to be hoped that there may be yet some intelligent action witnessed in Congress in relation to the shipping matters of this country. There is considerable necessary legislation to be done in this respect, and it cannot be begun too soon for the good of our shipping trade generally as it stands at the present time and in view of the possibilities of the future.

GALWEY COMMENDED.

At a meeting of the marine engineers held at Chicago last Friday evening, resolutions were adopted in defense of John H. Galwey, the president's appointee as inspector of steam vessels for the eighth district, with headquarters at Detroit, Mich. Chicago vessel owners are said to have laid charges before the Senate committee which allege that Mr. Galwey is a seditious labor agitator; that he is incompetent and that he is Don M. Dickinson's man. The resolutions declare:

"That seditious labor agitation has at no time in our history found favor in our councils; that our career as an order has been exceptionally free from the turmoil of strikes and labor battles, and in an existence of over twenty-one years as an association no voice or influence amongst our officials has been sounded or more conservative than was that of John H. Galwey. Fresh in the public mind must still be the creditable record of the marine engineers of the lake ports during the recent menacing labor troubles. Coincident with his first application for the inspectorship Mr. Golwey's resignation as a member of this union took place.

"That our original endorsement of John H. Galwey was given over a year before any similar action on the part of Hon. Don. M. Dickinson.

"That to our personal knowledge those vessel owners of Detroit whom Mr. Galwey has served as a licensed chief engineer for many years have over their own signatures strongly commended him for the position named."

THE MARINE RECORD

ESTABLISHED 1878.

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CLEVELAND, O., AUG. 23, 1894.

THE international canal convention called to meet at Toronto early next month, cannot result in anything practicable. The Canadians would never suffer a joint control of a waterway through their territory; neither would the United States care about entering into a pooling arrangement of interests whereby the Dominion authorities might lay claim to a certain amount of jurisdiction over our strictly national, if artificial, waterways. As a junketing party or a mutual admiration conclave the convention may be a success, but as a means of influencing a strangely national departure it can only result in a fiasco.

BUSINESS in all branches of trade, transportation and commerce, is now picking up and as the commercial agencies predict it is because "it has to." In the nature of things this condition was sure to come sooner or later independently of anything that Congress or any other legislative body in the world could do to prevent it. Now that the uneasiness relative to the tariff question is at rest all interests should again turn their attention to lucrative business enterprises and lots of them. Relative to the settlement of the iron ore tariff an increased output from the Lake Superior mines is already assured, as options on large quantities of ore extended from time to time has been closed this week.

FOLLOWING closely the line pursued by the United States Congress in enacting special legislation so as to secure a high speed line of steamers across the Atlantic, as evidenced by the Paris and New York, the Dominion government is about subsidizing a fast line of Atlantic steamers with a view to drawing from the traffic reaching our Eastern ports on account of their being able to offer a shorter route from Europe and holding out as a further incentive to capitalists that as a consequence of a first-class Atlantic service the trans-continental trade from Australia, China and Japan would be greatly facilitated and augmented, thus assuring an abundance of trade and transportation in commerce and passengers for the capitalists who will embark in the enterprise of opening up a fast Atlantic service between the Dominion and European ports in return for which the Canadas are willing to offer a liberal annual subsidy.

COLLISIONS IN FOG.

One of the most fruitful sources of loss of life and property on the lakes are the risks taken of colliding with other vessels through the passing signal being given at times when an imperfect understanding exists regarding the course steered by the approaching, crossing or passing vessel. If we take the case of the tug Sampson and the Fountain City in the collision which occurred during a fog off Long Point, Lake Erie, in 1887, and which has just been decided by the Circuit Court of Appeals, sixth circuit, we find the following resume: "The captain of the steamer testified that he first heard one blast of the tug's whistle about one point on the port bow, and answered it, indicating that the vessels would pass port to port. Next he heard three blasts from the same point, indicating that the tug had a tow, and he answered with a single blast, and ported his helm to give her a wider berth. He then heard two blasts from the tug, and answered them, and starboarded his helm. Then the tug gave a single blast, which he answered and stopped his engines." There are no practical seamen but will say that after all of this waltzing around in a fog the master of the Fountain City was highly justified in stopping his engines, and, furthermore, that he had done all that man could do to avoid a collision, or at least it would appear so. Hearing a whistle a point on the port bow, he was quite agreeable to port his helm, and ported still more on hearing a second signal. Not yet contented with his acquiescence, the approaching vessel sends him a signal of two blasts to alter his helm to starboard, which he also agreed to do, and only at the last signal, which was one blast and demanded that he should port again, did he think that the singular signaling had gone about far enough, and he stopped his engines, only the next moment to come into a collision which, though involving a loss of time and money, was happily clear of fatalities. Again will most practical seamen agree that he should have stopped his engines on the first crossing of signals.

Perhaps there is no more positive an object lesson in the misuse of passing signals in fog than the recently settled though well contested litigation between the owners of the steamers North Star and C. J. Sheffield, where the latter vessel foundered in deep water on Lake Superior and became a total loss through a confusion of the signals in use for passing vessels either in clear or thick weather, and as both vessels were ruled at fault, the loss, amounting to nearly $200,000, was divided. In this case the steamers were approaching on nearly opposite courses in a fog, exchanging two blast signals. All at once a single blast was heard and the other steamer, too ready to acquiesce, answered the one blast signal by a change of helm to port, and a collision ensued.

In both of the cases cited it would appear that a change of course or helm after the vessels had got into communication with each other was the primal cause of collision. It is also apparent that there is or was a marked feature of handling or controlling both boats by the one whistle in each case, and to this danger ought the attention of ship masters navigating in thick weather be directed more particularly. Further than this, it is a question if there is not a growing custom to sail by the whistle instead of, or rather in disregard of, the more explicit "rules of the road." Vessels meeting end on or nearly end on are required by the rules to port, yet in custom it is too often the case that whoever reaches the bell pull first takes a choice of helm and sides. Again, the plates illustrating the steering and sailing rules as issued by the steamboat inspection service clearly show that the steamer having another on her own starboard side gives way first, but where custom allows the whistle signal to take precedence there is a danger of the rules being generally ignored in all situations and in thick as well as clear weather. In fog, however, Revised Statutes §4233, rule 21, requires every steam vessel approaching another so as to involve risk of collision to slacken speed, or, if necessary, stop and reverse, and when in a fog, to go at a moderate speed. A vessel whose whistle bears a few points off either bow should learn the exact position and course of the other vessel, unless such circumstances present themselves at the time as would lead a reasonably prudent and skillful navigator to the confident belief that no risk of collision exists in pursuing his course and maintaining the rate of speed.

ON BOILERS.

The article on coil boilers contained in our issue of the 16th inst., has called forth favorable comments from several sources interested in the general adoption of that class of boilers to the disparagement of the cylindrical form or type.

It would, however, be well for the coil boiler enthusiasts to note that the leading minds in the field of mechanics are at the present time devoting their skill, ingenuity and knowledge towards getting out some still newer type or form of boiler for the use of higher steam pressures, and it is thought that whatever becomes a commercial success will necessarily result in the displacement of the now almost universal marine boiler, commonly known as the Scotch type; however this may be, the recently published results yielded by the latter when fitted with the improvements of Messrs. Ellis & Eaves go to show that it (the "Scotch" type) does not mean to give up the field to any of its rivals without a hard struggle.

Mechanical minds, and even the ordinary steam user, can not but admire the boldness with which these experiments on the old type of boilers are made, heedless of pet theories or the pronounced opposition of some of the best engineers of the day, for it has been affirmed over and over again that a *plenum* in the furnace comes to the same thing, whether obtained by forcing or induction, and on this assumption we are confronted with another instance of practice running counter to theory, and that too with success. The system to which we allude is briefly as follows: A large fan is placed over the back end of the boiler, sucking the air from the atmosphere though a nest of longitudinal tubes situated on top of the boiler, where the air is heated from the escaping gases before being drawn in through the fire, thence through the fan into the funnel.

The first vessel to be fitted with this system was the International liner Berlin, and so well has the system acted that it has been adopted in the two latest additions to the company's fleet, the Southwark and the Kensington.

A further economy has been found in the system when used in conjunction with the Serve tube, and the results so far attained are stated on excellent authority to have established the fact that a combustion of from 30 to 60 pounds of coal per square foot of grate can be maintained in marine boilers of the "Scotch" type without trouble to furnaces, tube plates, tube ends, fans or fan engines, accompanied by an appreciable economy, part of which is attributable to the Serves tubes.

It may be granted that heretofore the effect of forcing or high combustion under forced draft has been to cause dangerous leaks in the back ends of the tubes, and this has been perhaps more noticeable or marked in some of the tests made by the British navy. Yet, it must be admitted that with the induced draft this feature has been entirely absent, although scientists theorize on the problem and assert that it makes no difference whether you push the air into a furnace or pull it through.

Another feature which may be considered a departure from former custom is the inclination of the grates. The first set of grates fitted in the ordinary way were burned out in less than an hour, yet after experimenting it was found that by raising the back ends of the bars only two inches this source of trouble was avoided. For this departure we are not aware of theory providing us with any adequate explanations.

Furthermore, the action of the Serve tube, which is affirmed to be at least 7½ per cent. more economical than the plain tube, is not in harmony with the deductions from Peclet's researches, and that the air heating tubes should take up heat as they do is an enigma to those who profess to know all about the laws of heat transmission. After glancing at the apparent contradictions between theory and practice, we think that it may generally be held that, notwithstanding a lengthy experience, it must be confessed that what goes on in the inside of a boiler is as yet very much of a mystery. However this may be, one thing seems quite evident at this time, and that is that the ordinary form of Scotch type boiler will have in some way to be modified to suit the existing demand for increased economy in fuel, weight and space, or the alternative will result, viz.: that the old form of boiler will have to give place to some one of the many types which are being regularly heralded as obtaining distinction in departmental tests, or perhaps by something now being worked on which will carry off all honors at the patent offices and later become a pronounced commercial success.

AN American committee is in London seeking money for building the Nicaragua Canal. This committee says to the financial hub of the universe that "it really makes little difference whence the capitol comes, inasmuch as the canal must always be neutral and open to the world's commerce." Such a statement may be all very well to go before foreign investors with, but it is not quite trustworthy in view of the independent feeling in the United States that if when the canal is completed its ownership, or at least a majority of the shares, must be controlled by Americans. In a word, the canal ought to be built with American capital even if the amount required for constructive purposes had to be granted by the government, otherwise a scramble to purchase at an enhanced valuation will undoubtedly mark the policy of the government shortly after the successful completton of the canal and we will then repeat the history of the British with the Suez.

SHIPPING OF THE UNITED KINGDOM.

United States Consul Howells, of Cardiff, transmits the following statistics:

The annual statement showing the navigation and shipping of the United Kingdom, which has just been issued by the commercial department of the Board of Trade, shows that the growth of the shipping trade, which has long been phenomenal, still continues. The total number of vessels which entered the ports of the United Kingdom during the year 1893 was 380,288, against 376,507 in 1892 and 372,150 in 1891. The tonnage of these vessels shows an even greater increase, being 85,692,637 tons, 87,087,970 tons, and 88,964,468 tons for 1891, 1892 and 1893, respectively.

The number and tonnage of British and foreign sailing and steam vessels, including their repeated voyages with cargoes and in ballast from and to foreign countries and British possessions and coastwise, which entered the port of Cardiff in the year 1893 were as follows: Of the vessels with cargoes there were entered 4,750 with a tonnage of 1,396,726, while 11,951 cleared with a tonnage of 6,566,299. The number of vessels in ballast that entered was 9,098 of 5,726,876 tons, and the number that cleared was 1,752 of 559,883 tons.

The sailing and steam vessels on the register of this port in the year 1893 were as follows: Sailing vessels, 70 of 8,973 tons; steam vessels, 228 of 173,591 tons.

The following comparative figures are of special interest, showing the number and tonnage of ships of all kinds, including their repeated voyages, entered at this port during the years 1889, 1891 and 1893: 1889, 13,287 vessels, 6,027,420 tons; 1891, 13,383 vessels, 6,611,763 tons; 1893, 13,848 vessels, 7,123,602 tons.

LAKE FREIGHTS.

To whatever cause it may be assigned whether the settling of the tariff question has had anything to do with it, or it is the effect of trade settling back to its former channels, the fact remains that brisk chartering at advanced rates is noticeable all along the line, so that it is not on account of tonnage being grouped at any one point, thus bringing about a scarcity at others, for the firmness to obtain fair living rates of freight is general among vessel owners and they have succeeded this week in bringing about a fairly rising freight market.

The stereotyped rate of 60 cents from the head of Lake Superior, moved on Wednesday from 70 to 75 cents, with a firm feeling that the rate ought still to go a notch or two higher, as it no doubt will within the next few days. The Escanaba rate is also quoted 5 cents better, making it now 45 cents with every likelihood of another five-cent raise if owners will not be too eager in placing their boats. The Marquette rate advanced to 60 cents. Coal rates from Ohio ports to Gladstone and the head of Lake Superior are firm at 40 cents, to Portage and some light chartering to Escanaba 45 cents, Buffalo to the head of the lakes 30 cents, Marquette 40 cents, Bay City 35 cents, Toledo 25 cents, Chicago, Milwaukee and Green Bay 50 cents.

The Chicago grain rate to Buffalo was advanced by the lake lines to 1¼ cents, but actual chartering is being done at 1⅛ cents on wheat, 1 cent on corn, and ⅞ cents on oats to Port Huron. The Duluth rate on wheat is now quoted at 1¾ cents, with a firm demand being made for 2 cents. Brisk shipments of lumber are being made at $1.75 per thousand feet to Chicago. Toledo and Detroit wheat to Buffalo 1¼ cents, Oswego coal to Duluth 65 cents.

Erie Canal freights are steady at 3¼ cents on wheat and 3 cents on corn to New York, $1.75 on lumber and $1.35 to Albany.

RIVER AND HARBOR APPROPRIATIONS.

For river and harbor work there were appropriated at this session of Congress, including the amount carried by the river and harbor bill, $11,473,180 and $8,400,000 for contracts in the sundry civil bill, the total sum of $19,873,180.

During the first session of the last Congress there was appropriated by the river and harbor bill $21,154,218 and for contracts in the sundry civil bill $814,000; in all $21,-968,218, or $2,095,038 more than was appropriated at this session.

During the first session of the Fifty-first Congress a river and harbor bill was passed appropriating $25,136,-295, being $13,663,115 more than was appropriated in the river and harbor bill of this session and $5,263,115 more than the river and harbor bill and contract work appropriated for in the sundry civil bill at this session combined.

The river and harbor act passed September 9, 1890, first session Fifty-first Congress, authorized contracts to be made for certain river and harbor works in excess of appropriations to the amount of $13,282,979. Toward meeting said contracts, the Fifty-first Congress, at its second session, appropriated $1,951,200, leaving $11,331,-779 to be approptiated by subsequent Congresses.

The river and harbor act, passed July 13, 1892, at the first session of the Fifty-second Congress, authorized contracts to be made for certain public works in excess of appropriations to the amount of $31,760,521.

Toward meeting the river and harbor contracts authorized by the Fifty-first Congress, there were appropriated at the two sessions of the Fifty-second Congress the sum of $4,583,000 and toward meeting the contracts authorized at the first session of the Fifty-second Congress there was appropriated at the second session of that Congress the sum of $10,397,153.

At the present session of Congress there has been appropriated the sum of $1,300,000 toward meeting the river and harbor contracts authorized by the Fifty-first Congress and $7,100,000 toward such contracts authorized by the Fifty-second Congress, leaving $5,488,779 of the former and $14,263,368 of the latter, or $19,712,147 in all of river and harbor contracts yet to be appropriated for.

The present Congress has authorized no contracts to be made for river and harbor works in excess of the appropriations actually made.

A LAKE ERIE SHIP CANAL.

The Pittsburg provisional committee appointed to devise ways and means for the construction of the Lake Erie ship canal between the Ohio river and the lakes, met at that city on Tuesday. Col. T. P. Roberts, engineer of the Monongahela River Navigation Co., asserted that water supply tributary to the canal is four times greater than needed, and can be reached at a cost of $600,000. The cost of the canal would not exceed $25,-000,000. It would have a capacity of 15,600,000 tons per annum, double the present tonnage of the railroads covering the same territory.

John F. Shaw estimated that the commercial interests and population of the territory through which the canal is to pass would double and the railroads would really be beneficiaries of the improvement. An executive committee was appointed to prepare a statement for the public. The provisional committee will meet again September 4th.

NOTICE TO MARINERS.

Extension to Goderich Breakwater Piers.—The breakwater piers at the entrance to Goderich Harbor, Lake Huron, Ontario, are being extended further into the lake. The contractor now has a length of about 300 feet added to the end of the north pier, and 110 feet to the end of the south pier. The cribs are at present just flush with water, and vessels entering the harbor at night will require to be very careful not to collide with these cribs.

Wm. Smith,
Deputy Minister of Marine and Fisheries.

Department of Marine and Fisheries, Ottawa, Canada, August 7th, 1894.

CANALIZING TO THE COAST.

The Eastern papers are beginning to discuss the feasibility of the proposed canal connecting Lake Superior with the Atlantic, thus making a water route from the head of the lakes to the seaboard. The Washington *Post* has the following editorial in regard to this important proposition:

Verplanck Colvin, an engineering expert, has recently published a paper on the proposed ship canal, connecting the Great Lakes with New York, which is attracting much attention in the Northwest. The Minneapolis *Journal* thinks it absolutely certain that public sentiment in the Northwest will compel the improvement of the waterway from Duluth to Buffalo to any depth necessary for commerce. The outlet to the sea is, of course, the next important matter.

Mr. Colvin urges that the building of a ship canal is essential to New York's welfare and that the state should undertake the construction of two ship canals, one via the Erie canal route and the other by the Lake Champlain and St. Lawrence valley route. The latter, he says, can be built at moderate expense, as no great reservoirs would be needed and the entire volume of the Hudson river is available at Fort Edward, where the divide is crossed to Lake Champlain and the entire volume of the St. Lawrence is available to supply the canal from the St. Lawrence to Lake Champlain. As to the Oswego route, Mr. Colvin says the summit level of the Erie canal between Albany and Oswego is 420 feet, as compared with the level of 150 feet between Albany and Lake Champlain. The Erie ship canal, he estimates, will cost $6,000,000 and the Champlain-St. Lawrence canal will cost $4,000,000.

These estimates are generally believed to be too low, as is usually the case with forecasts on the cost of the canals, but Mr. Colvin is a high authority on such matters. The Minneapolis *Journal* says that "if New York state will undertake the Erie ship canal the cost of which is comparatively small that will be what the Northwest desires as an outlet to the sea." We do not know how soon the great work of completing a waterway through which ships can pass from Duluth to the sea will be entered upon, but it seems certain that necessity will at no distant day irresistibly urge its construction.

THE CHAPIN MINE.

A Milwaukee special says: The stockholders of the Chapin Mining Co. will meet in Milwaukee September 3rd to consider the foreclosure proceedings begun by Attorney Flannigan, trustee for the bond-holders. August 10, 1893, the company mortgaged its property to secure the payment of its bonds, aggregating the sum of $1,038,000, divided into three classes: $200,000 of the first, $538,000 of the second and $300,000 of the third class. All but the bonds of the third class have been disposed of. About 119,000 tons of ore were conveyed by the mortgage, which ore was sold by M. A. Hanna & Co., of Cleveland, for the account of Mr. Flannigan, as trustee, the price brought being $301,450.52, and from the proceeds of the sale thus far collected the charges have been deducted, amounting in the aggregate to $163,250.58, leaving $180,316.29, which has been remitted to the trustee. From the ore not yet sold it is probable that the trustee will receive about $11,000. The outcome of the matter will be watched with great interest in mining circles, and it is hinted that if the property is disposed of next month it will be bid in by M. A. Hanna & Co., of Cleveland, and C. A. Chapin, of Niles, Mich., the discoverer and first owner. It should be stated, however, that Mr. Hanna denies the statement relative to his firm being certain investors in the reorganization.

TO DEEPEN AND ENLARGE THE ST. MARY'S FALLS CANAL.

The Duluth Board of Trade are the first to take action on the deepening and enlarging of the old government lock at Sault Ste Marie. Other lake cities should bring the matter before their Chambers of Commerce and Boards of Trade at an early date. The resolutions relating to deepening the old lock at Sault Ste Marie are as follows:

To the Honorable President, Secretary and members of the Duluth Chamber of Commerce, Gentlemen:—

The subject matter of deepening and enlarging the old government lock at Sault Ste Marie, referred to this committee, we beg leave to report: That in our judgment the old government lock at Sault Ste Marie should at the very earliest practicable day be deepened and enlarged to correspond in dimensions and capacity with the new government lock now nearing completion, in order to accommodate the rapidly increasing traffic of the Great Lakes, which at the present time is about equal to the maximum capacity of the newly enlarged lock.

That the commerce, traffic and tonnage of this route will steadily grow and keep pace with the increase in population and development of the manifold resources of the boundless territory upon both sides of the international boundary line.

That in the near future the new lock will be found totally inadequate to meet the requirements and in case of any accident or derangement to the new lock, a partial or possibly complete blockade of this vast commerce would necessarily ensue.

We therefore suggest the adoption of a resolution by this chamber, setting forth substantially the same ideas and asking our Senators and Representatives in Congress from this and adjoining states to immediately take such action as will result in the desired end. Yours respectfully,

Committee { A. Hirsch, H. C. Spaulding, W. B. Welles.

STAGE OF WATER AT ST. MARY'S FALLS CANAL.

Department of Agriculture, Weather Bureau.

Depth of water at the St. Mary's Falls Canal for the week ending Aug. 23, 1894:

Aug	16	8 a. m.,	14	feet	11	inches.	8 p. m.,	14	feet	11 inches.
"	17	"	14	"	10	"	"	15	"	.. "
"	18	"	15	"	..	"	"	15	"	.. "
"	19	"	15	"	..	"	"	15	"	.. "
"	20	"	15	"	..	"	"	15	"	.. "
"	21	"	14	"	11	"	"	14	"	11 "
"	22	"	14	"	9	"	"	14	"	11 "
"	23	"	14	"	10	"	"			

TUGS AS FIRE BOATS.

At a meeting of the committee appointed by the Lumberman's Association of Chicago last week for the purpose of devising ways and means for better fire protection to property along the Chicago river, and adjacent thereto, by equipping the river tugs with fire pumps, all to be subject to the control of the municipal fire department in cases of emergency, the following resolution was unanimously adopted:

"Resolved, That the secretary of the Lumberman's Association be instructed to communicate with or visit the various organizations comprising elevator, railroad, board of trade, shipping interests, coal, insurance, stock yards, also the large individual representatives of property adjacent to the river, and request the appointment in their behalf of committees to meet the committee of the Lumberman's Association at their rooms, No. 1360 Old Colony building, at such future time as such committees are reported named, and subject to further advices as to time of meeting, with a view of devising ways and means for the equipment of the tugs plying on the river with pumps and such other fire apparatus, subject to the control of the fire department, for use and subject to call in cases of fire adjacent to such river, and be it further

Resolved, That the mayor and the chairmen of the committees of fire and water, finance and ways and means of the Common Council and Fire Marshal Swenie be requested at such meeting."

Secretary Hooper, of the Lumberman's Association, who has charge of the work for the committee, says that the proposition has excited considerable interest, not only among the lumbermen, but among the large property owners on the river front. "Chief Swenie," says Mr. Hooper, "is strongly in favor of the plans presented, and has gone so far as to construct rules and regulations under which he would assume to control the battalion. The chief is in favor of equipping twenty-five tugs, the cost of which will not exceed $25,000. The apparatus would be simple, consisting of a fire pump and about 600 feet of hose. The tugs will be summoned by the Geyser's whistle and other means, and must always be subject to call, no matter what work they are engaged in at the time. In order to be sure the apparatus is kept in proper order, inspections are to be made by the fire department at the option of the chief."

Referring to the reports that the scheme was one to produce an increase in rates, Mr. Hooper said: "The lumbermen as a whole are satisfied with the present rates for insurance, and are thoroughly in earnest in their move to furnish better protection to their interests. Not only are the lumbermen bettered by the move, but all river interests will receive the same protection if it is needed."

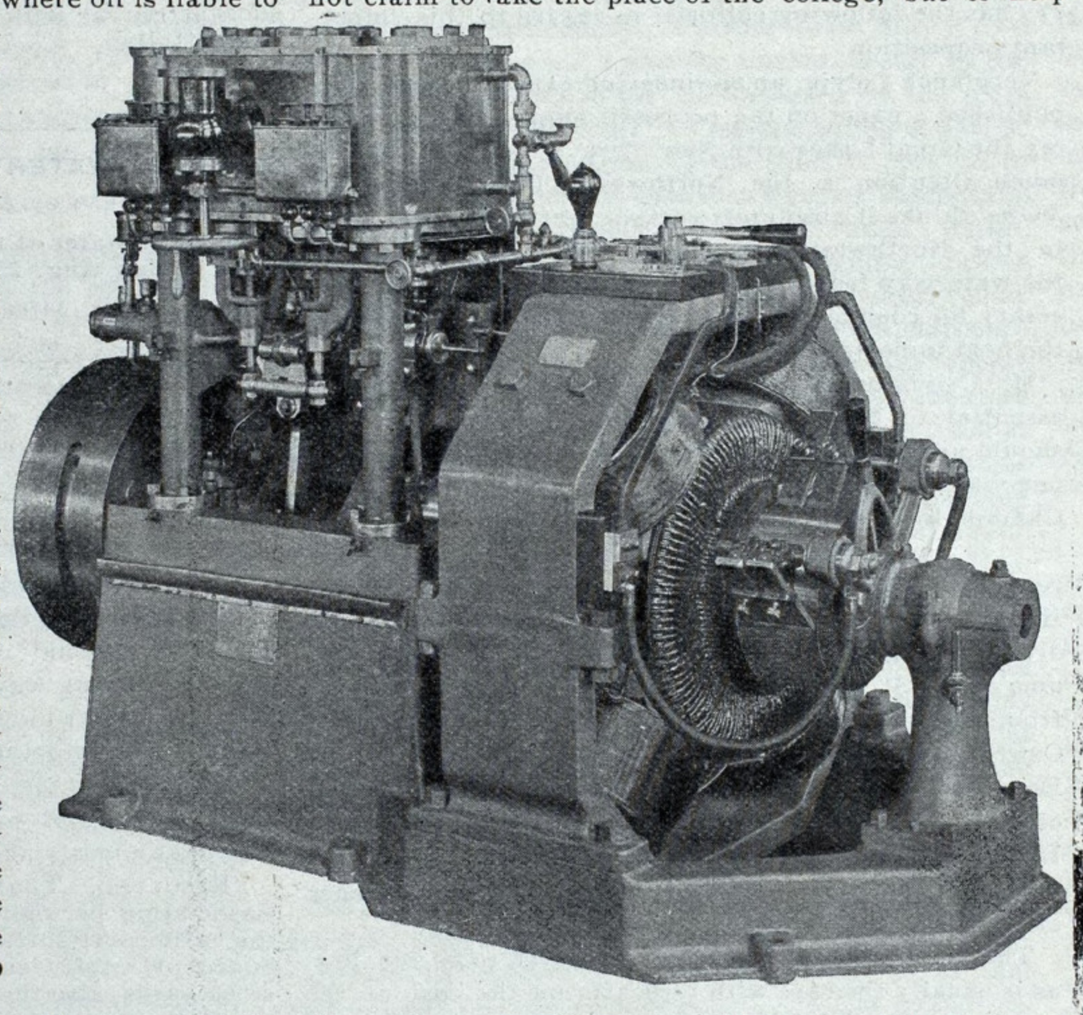
A NEW MARINE GENERATING SET.

(ILLUSTRATED.)

The illumination of vessels by electricity instead of the smoky oil lamp has so rapidly extended that it may be said there is hardly a steamship which has a due respec for the place it occupies in nature's scheme which is not equipped with an electric lighting plant. This is partly due to the example set on land, but mainly to the fact that the apparatus to fulfill the requirements of marine service and cope with the conditions which obtain on board ship has reached a high degree of perfection. We illustrate a small marine generating plant which has only recently been placed on the market by the General Electric Co.

The engine of the combination is of the automatic cut-off type, double and vertical, and is rated on a basis of 80 pounds initial steam pressure, one quarter cut off. This leaves a liberal reserve capacity above the rating given, and the engine can be run under any steam pressure between 60 and 100 pounds. All the parts are accurately cut, so that in case of necessary repaires delay in fitting is avoided. All bearing surfaces are carefully fitted and flat surfaces scraped to surface plates. The crank shaft is of hammered Bessemer steel made in one piece, while the connecting rod is of forged steel with babitted boxes. The cross head is of a crucible steel casting with babbitted wearing surfaces, and the main bearings are provided with interchangeable babbitted cast iron boxes, and are of extra length.

The dynamo is well protected with oil guards, and guards are furnished for all places where oil is liable to be thrown. The oiling arrangement is such that the engine may be run continuously without stop, and the bed is so constructed that all the waste oil is collected in one pit from which it may be drawn, strained and again used. The governor is of very simple construction, its parts are readily accessible and are always in sight. All those parts of the combination subject to wear are made of hardened tool steel.



The variation in speed from extreme light load to the full capacity of the dynamo does not exceed four per cent., and full load may be thrown on or off with not more than four cent, increase or decrease in speed. The connection between the engine and dynamo is made through a solid flange coupling especially constructed for a ready and easy disconnection of the armature. The armature is of the smooth body type, and the entire load may be thrown on without shifting the brushes and without sparking. The sets are built in four sizes 15, 30, 40 and 50 K. W.

These combinations, while primarily intended for marine work, are also especially adapted for isolated plants in hotels, theatres, office buildings, etc., and all the qualities which characterize them will be found equally advantageous whether the plant be on land or aboard ship.

MARITIME PATENTS.

Rowlock. James T. Ish, San Francisco, Cal., assignor to Samuel Bonnifield, same place. Filed Aug. 17, 1893. Claim—In a rowlock, the combination of a pair of pins, adjustably mounted in the rails of a boat, one of said pins being connected to the other, to act in unison therewith, a staple, in which a projected portion of one of said pins is guided, a latch carried by said pins, and a pin or peg adapted to be engaged by said latch.

Raising sunken vessels. Oscar A. Bulette, Charleston, Wash. Filed May 19, 1894. Claim—As an improved means for raising wrecks or sunken vessels, the combination of the bill-hook rigidly attached to a vessel, with its nose projecting downward, a float and reel, a guide rope attached to reel and to the bill-hook at a point above its nose, and a lifting cable having a loop or ring which is secured to one end and adapted to slide on the guide rope and to pass over and automatically engage the bill-hook.

Submarine signaling. Lucien I. Blake, Lawrence, Kan. Filed Dec. 22, 1893. Claim—A system of signaling between an anchored light-ship and the shore, comprising in combination telephonic or telegraphic signaling instruments and batteries on the ship and shore respectively, an insulated cable extending from the shore station to the ship's anchor, with which the core of the cable is electrically connected, a conducting anchor chain, and a circuit on the ship from said chain to a submerged metallic plate, said circuit including the signaling instruments on the ship.

Marine velocipede. Herman B. Ogden, Brooklyn, N. Y. Filed March 17, 1894. Claim. The combination, with the boat having the fin keel and the propeller shaft projecting through the rear end of the fin keel, of the frame extending longitudinally of the fin keel and provided with depending hangers, pedal operated driving mechanism secured to the hangers and geared to the propeller shaft, and a saddle and handle bars also supported on the frame.

ADVANTAGES OF AN EDUCATION.

The great value of a technical education is admitted in all industries, and those who are without it are placed at a disadvantage in the struggle for success. But very few now hold the opinion that daily practice is the only education necessary for a man to have to understand his business. Experience is absolutely necessary for a thorough understanding of any trade or profession, but unless it is supplemented by technical education, it will not qualify a person to gain the front rank in the close competition which characterizes the industrial activity of the day.

The Correspondence School of Mechanical and Industrial Sciences of Scranton, Pa., is having a wonderful success with its novel method of instruction. This method of instruction by correspondence is adapted to the requirements of the large class of uneducated practical men, whom the regular schools cannot help, for those who cannot attend a college and yet are anxious to improve their wage-earning value. The school does not claim to take the place of the college, but to help those who are willing or obliged to study at home. That for the ambitious mechanic the Scranton school is the best, is evidenced by hundreds of letters received from mechanics and superintendents in every section of the country. The principal studies entered into by the Correspondence School of Mechanics and Industrial Sciences, are mechanics, mechanical drawing, electricity, architecture, architectural drawing, plumbing, heating and ventilation, railroad engineering, bridge engineering, surveying and mapping, and the English branches. Those of our readers desirous of further information on the subject should apply to T. J. Foster, Manager Correspondence School of Mechanics, Scranton, Pa.

SUB-COLLECTOR OF CUSTOMS CALLED DOWN.

Inspector McMichael, of the Dominion Customs, who was instructed some time ago by the Acting Controller of Customs to inquire into the circumstances of the seizure of the American fishing steamer Louise, of Sandusky, by sub-collector McCormick, of Southport, Pelee Island, has made his report, the result of which is that the acting controller of customs has suspended Mr. McCormick from duty and pay. It appears that this steamer has for years been in the habit of clearing from Sandusky and purchasing fish from Canadian fishermen, reporting at one of the outposts of Amherstburg, of which there are four—Leamington, on the mainland, Southport, Westport and Northport, on Pelee Island. Mr. McCormick is sub-collector at Southport and has endeavored to have the captain of the Louise always report there, for which he has charged a fee of $1.50, which is 50 cents more than the authorized amount. It also appears that some years ago Mr. McCormick gave the captain clearance papers signed in blank so that he could fill them out himself and one of these papers was actually used by the captain at the time Mr. McCormick caused the seizure of the Louise to be made by the marine and fisheries department, on the ground of infraction of customs regulations, by not reporting. The captain of the Louise does not seem to have committed any infraction of the law and Mr. McMichael reports that the seizure was unwarranted and the officious Canadian sub-collector of customs has been suspended, as above stated.

AN EARLY COMPOUND ENGINE.

The first attempts to economize steam in locomotives by multiple expansion were made at an early date, and the majority were based upon an application of the principle of the Woolf steam engine to locomotives. The earliest invention in this direction was by Mr. Roentgen, a Dutch engineer, in February, 1834. Mr. Roentgen proposed to overcome the difficulties of the Woolf engines by arranging the two pistons in such a manner that one was in the middle of its stroke when the other was at the end. The steam passed from the small to the large cylinder through an intermediate reservoir placed between the cylinders so as to get a more equal motion and to prevent shocks. This reservoir may be placed in the smoke box in order to utilize the heat of the gases for increasing the temperature and pressure of the steam. The invention was claimed as applicable to marine engines, but the inventor expected the same advantages from its application to locomotives. From this extract from Mr. Roentgen's specifications it will be seen that his engine was the first two-cylinder "compound" engine, *i. e.*, multiple expansion engine with two separate cranks set at an angle of 90 degrees and with an intermediate receiver. It will also be seen that Mr. Roentgen had perfectly understood the working conditions of his engine. Probably he did not succeed in introducing his engine because there was not at that time any obvious necessity to improve the economy of marine and locomotive engines.—*Cassier's Magazine.*

NOTES.

A LETTER received this week at Port Townsend, Wash. from one of the officers of the Bering Sea fleet, states that a recent visit to the Seal Islands by one of the officers of the fleet disclosed the fact that there are not as many females there as last year, and the seals are evidently diminishing year by year. So certain are the authorities on this point that they will kill a larger number of male seals this year than usual. It is expected that the sealers will kill a large number of females, leaving many young ones to starve.

□ THE British Naval and Military Record thus refers to a new torpedo gunboat built by the French government: "The boat is constructed of aluminum and its extreme lightness will allow of its traveling at the rate of 31 knots an hour. This speed will beat the record, which at the present time is 29.3, obtained by the new Thornycroft torpedo gunboat trials a few days since. There is no doubt that aluminum is the coming metal, and will be used a great deal in ship construction. As the little launch which came out at the Henley regetta can move as fast as other launches of the same size with half their power, it is fairly certain that it will supersede the present brass fittings of the torpedo gunboats, which are very weighty. Another matter to be borne in mind is the fact that it will be possible to carry more coal if the boats can be made lighter in construction."

THE navy department has decided to buy, for experimental use on the torpedo cruiser Cushing, a folding boat of German manufacture. The problem of providing boats for these vessels has been a serious one. The use of wooden or metal boats is out of the question, on account of the difficulty of carrying them. If they were hung on davits, as on ordinary vessels, they would soon be destroyed in an engagement and as it is essential that the crew should have means of escape, in case the vessel were in danger of foundering, folding boats, made of canvas, such as sportsmen use, have been used heretofore. The German boat is made of canvas, and is stiffened with cushions made of reindeer hair, which cannot easily be disabled. Great Britain recently bought forty of these folding boats and it caused sharp criticism of the Government in the House of Commons for going abroad for the purchase of naval equipment.

THE British yacht Valkyrie that was sunk in the Clyde river, Scotland, in about twenty fathoms of water, has been successfully raised and taken to the dock at Greenock. The pontoons, wire belts, chains, and other lifting gear of the British Marine Salvage Co. were employed to get the vessel taken out of the mud at the bottom and brought by successive lifts to the surface of the water. When the yacht's decks were at length above water and the hole on the side of the yacht, caused by the collision, had been patched, the vessel was pumped out and taken across to Greenock where she will be cleaned and put into dry-dock for survey of the damage. The work has been carried out by the Glasgow Salvage Association, acting under the instructions of the underwriters concerned. John Younger of Glasgow, iron merchant, purchased the Valkyrie, at auction, for £680.

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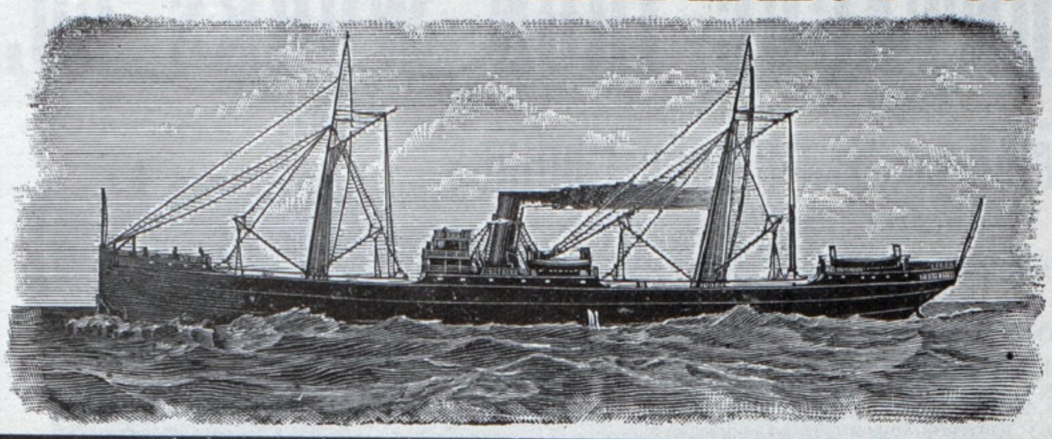

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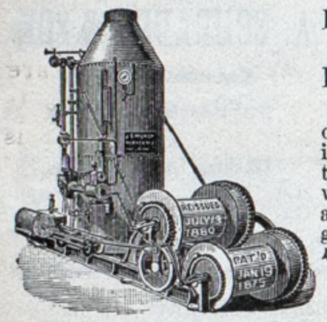

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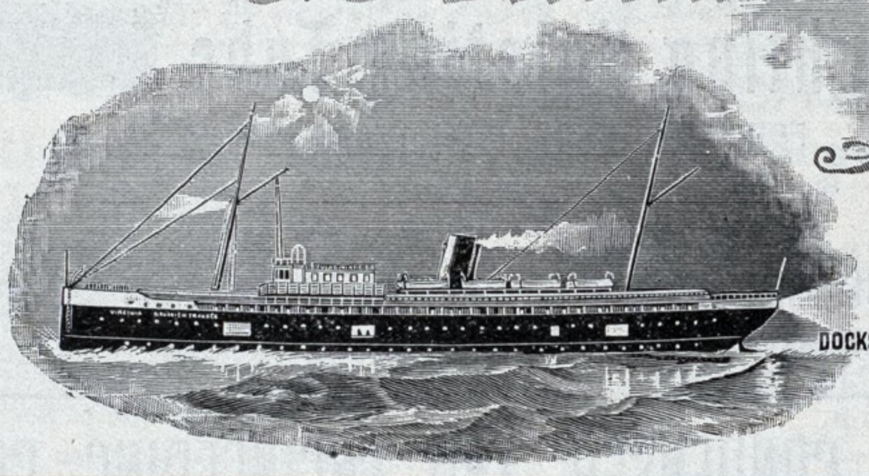

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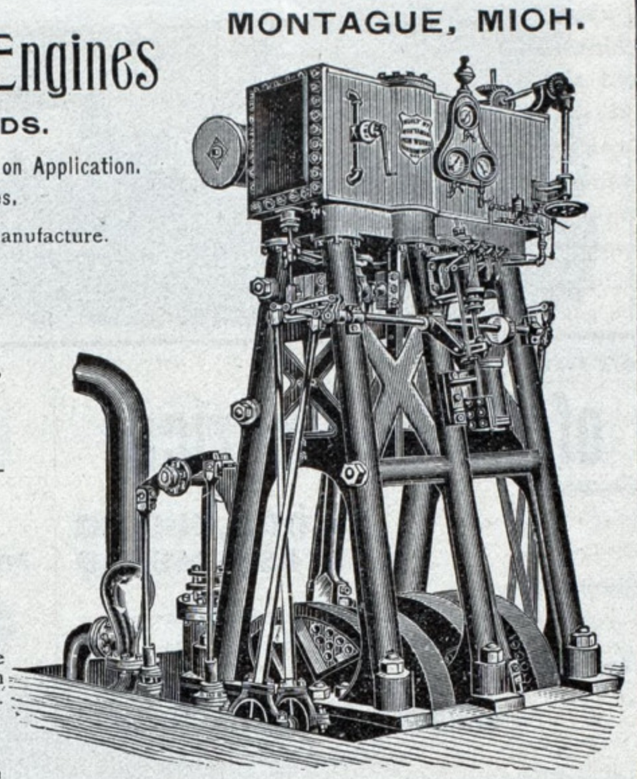

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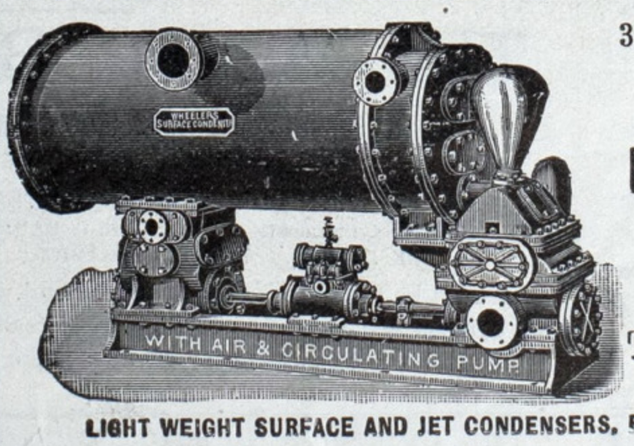

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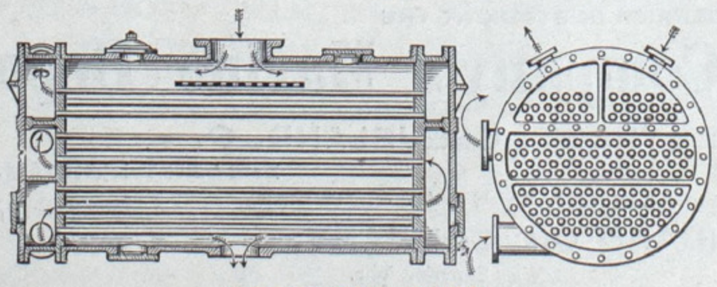

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PROPOSALS.

U. S. ENGINEER OFFICE, 34 West Congress street, Detroit, Mich., August 6, 1894. Sealed proposals for Operating Machinery for the 800-ft. Lock, St. Marys Falls Canal, will be received here until 2 p. m., September 5, 1894, and then publicly opened. All information furnished on application. O. M. POE, Col. Corps of Engineers. 32-35

U. S. ENGINEER OFFICE, 34 West Congress street, Detroit, Mich., August 23, 1894. Sealed proposals for furnishing all labor, materials, and appliances, and removing a shoal of bed rock and other material from Sec. 8, Ship Channel between Chicago, Duluth and Buffalo, will be received here until 2 p. m., standard time, September 22, 1894, and then publicly opened. All information furnished on application. O. M. POE, Col. Corps of Engineers. 34-37

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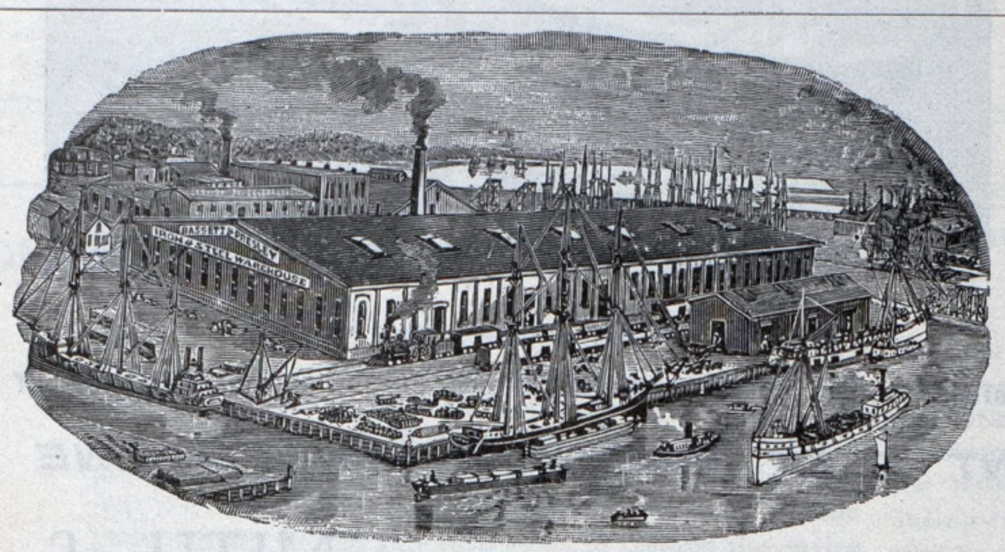

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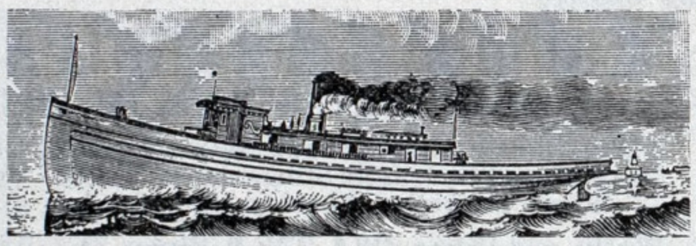

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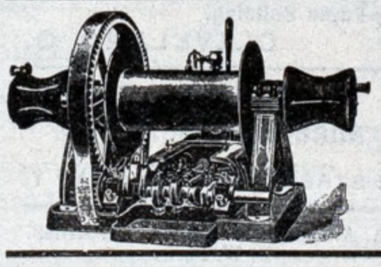

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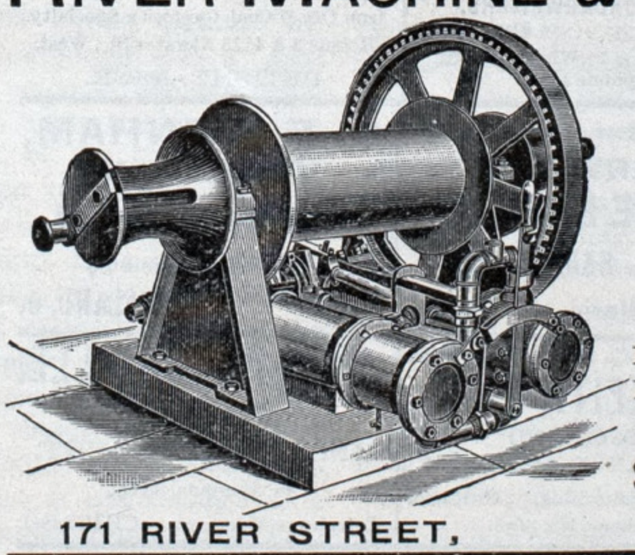

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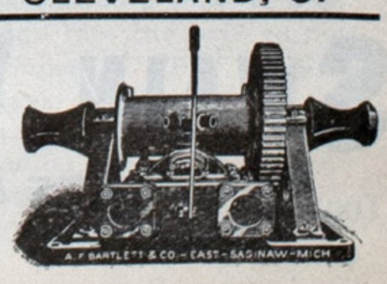

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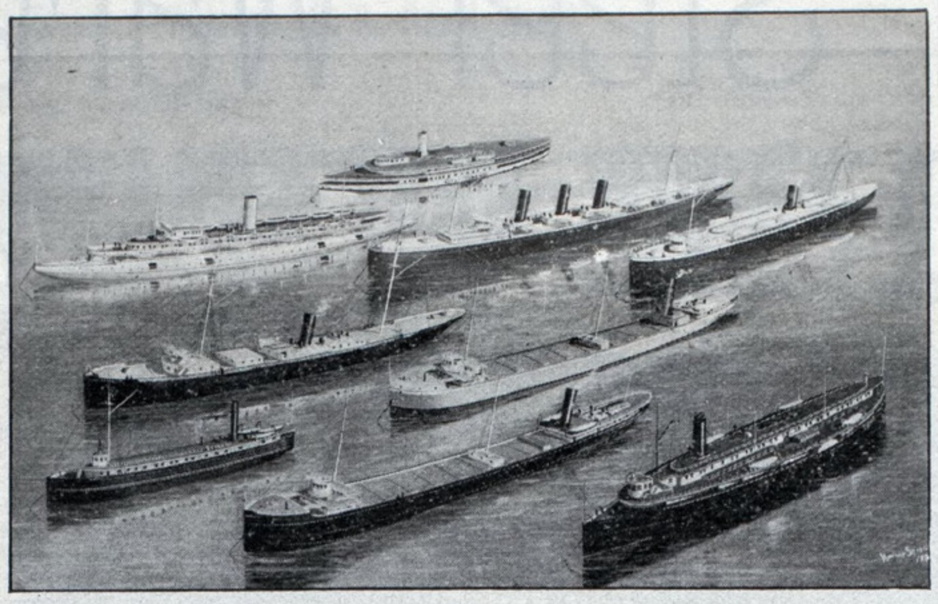

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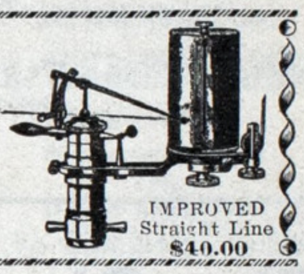

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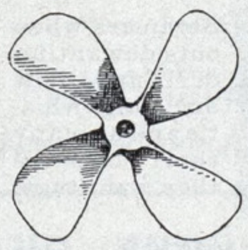

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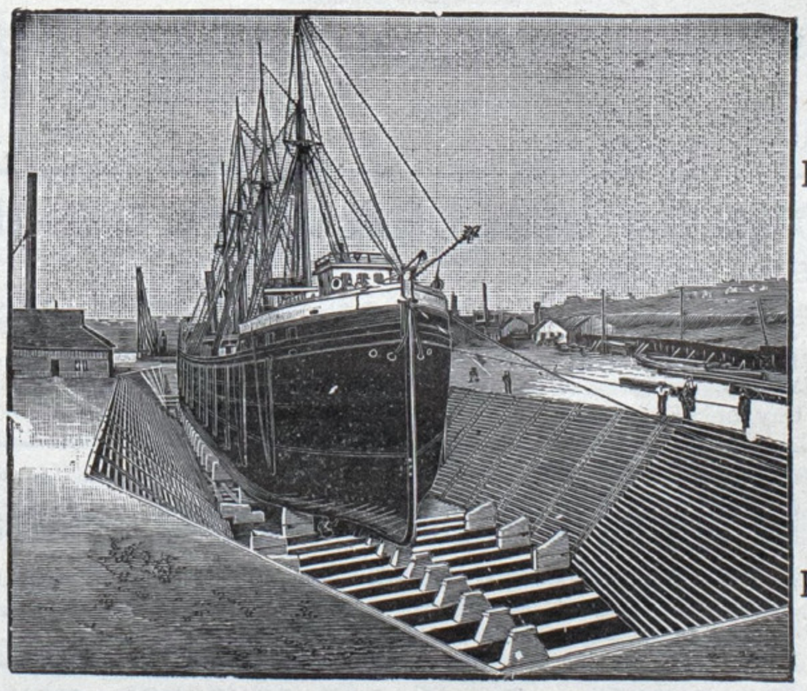

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